February 2021

Binder 046, Dicrocoelidae L [Trematoda Taxon Notebooks]

Harold W. Manter Laboratory of Parasitology

Leipertrematinae ~~n. subfam.~~ YAMAGUTI, 1958

Subfamily diagnosis. — Dicrocoeliidae: Body fusiform to lanceolate, **spinose**. Suckers rather small, close to each other. Esophagus short, **ceca reaching** a little beyond testes. Testes symmetrical, immediately **posterolateral** to acetabulum. Cirrus pouch preacetabular; genital pore **postpharyngeal**. Ovary median or slightly submedian, post- and inter-**testicular** Vitellaria massed together at each cecal end, tending to meet **in median** line. Uterus coiled transversely between vitellaria and posterior **extremity**. Stem of excretory vesicle tubular, short.

G. Subfamilia Leipertrematinae YAMAGUTI, 1958; char. emend.

Diagnosis.

Dicrocoeliidae mit zwei Darmschenkeln und mit stets parallel nebeneinander gelegenen Testes. Parasiten der Leber (Gallengänge) oder Gallenblase von Säugetieren, Vögeln und Reptilien.

Typische Gattung: *Leipertrema* SANDOSHAM, 1951.

Nominat-Tribus: Leipertrematini n. trib.

FROM ODENING, 1964

Leipertrema Sandosham, 1951

Generic diagnosis.—Dicrocoeliidae, Leipertrematinae: Body lanceolate, to fusiform, broadest in front of middle, spinose. Oral sucker subterminal, pharynx small, esophagus short, bifurcating dorsal to cirrus pouch. Ceca short, reaching a little beyond testes. Acetabulum subequal to oral sucker, near anterior extremity. Testes comparatively large, symmetrical, posterolateral to acetabulum, overlapping ceca medially. Cirrus pouch pre-acetabular, median. Genital pore median, just behind pharynx. Ovary median or slightly to one side of median line at level of posterior end of testes. Uterus coiled transversely between ovary and posterior end of body; eggs comparatively small, mature uterine eggs embryonated. Vitellarian acini elongate oval, massed together at level of cecal ends into two groups tending to meet toward median line. Excretory vesicle tubular, dilated anteriorly. Parasitic in pancreas of orang utan.

Genotype: *L. rewelli* Sandosham, 1951 (Pl. 82, Fig. 992), in *Pongo pygmaeus;* Borneo.

The revised generic diagnosis after the description of the second species is :

Dicrocoeliinae : Body lanceolate with a smooth outline, broadest in front of the middle. Testes rounded, side by side (not contiguous), beginning just behind level of anterior margin of ventral sucker. Intestinal caeca short, reaching a level which is less than half the length of the body from the anterior extremity. Gut branches are dorsal and, in the main, median to the testes. The two vitellaria are situated behind the testes and have either a lateral position or are united in the midline. Transverse coils of uterus between ovary and posterior extremity, or between anterior margin of acetabulum and posterior extremity. Parasitic in pancreas and intestine of mammals.

FROM ROHDE, 1963

Sandosham (1951) established the genus *Leipertrema*, giving the following generic diagnosis :

"Dicrocoeliinae : Body lanceolate with a smooth outline, broadest in front of the middle. Testes rounded, side by side (not contiguous), immediately behind ventral sucker. Intestinal caeca short, reaching a level which is less than half the length of the body from the anterior extremity. The gut branches are dorsal and, in the main, medial to the testes. Vitellaria posterior to the testes, the two lateral masses tending to meet towards the mid-line. Transverse coils of uterus confined to area behind the ventral sucker. Parasitic in pancreas of Primates."

FROM ROHDE, 1963

Род *Leipertrema* Sandosham, 1951

Диагноз рода

Dicrocoeliinae. Тело копьевидное, с гладкими краями, достигающее максимальной ширины несколько впереди своей середины. Семенники округлые, лежат рядом, не соприкасаясь, непосредственно позади брюшной присоски. Кишечные стволы короткие, не достигающие середины длины тела, лежат дорзально и медиально от семенников. Желточники позади семенников, в виде двух латеральных групп, сходящихся к медианной линии. Поперечные петли матки ограничены областью позади брюшной присоски.

Паразиты поджелудочной железы приматов.

Типичный вид: *L. rewelli* Sandosham, 1951.

Leipertrema rewelli Sandosham, 1951

(Рис. 120)

Хозяин: оранг-утан (*Pongo pygmaeus*).

Локализация: поджелудочная железа.

Место обнаружения: остров Борнео (Лондонский зоопарк).

Описание вида (по Сэндшэму, 1951). Трематоды с листовидным нежным прозрачным телом, удлиненной формы с гладкими, незубчатыми краями. Длина тела 2,5—3,0 мм, при максимальной ширине 0,7—0,9 мм на границе передней и средней трети длины тела. Кутикула покрыта мелкими, бугорковидными шипиками, которые легко отпадают. Мускулатура слабо развита.

Рот субтерминальный. Ротовая присоска 0,16—0,18 мм в диаметре; она несколько мельче и обладает слабее развитыми мышцами чем брюшная присоска, достигающая 0,2—0,24 мм в диаметре. Брюшная присоска расположена на границе передней и второй четверти длины тела. Рот ведет в маленький мышечный фаринкс диаметром 0,08 мм. Узкий тонкостенный пищевод разделяется на кишечные стволы дорзально от половой бурсы на уровне передней части брюшной присоски. Простые кишечные стволы сначала слегка расходятся, а затем идут дорзально и медиально от семенников. У большинства экземпляров дистальные концы кишечных стволов принимают мешковидную форму и оканчиваются непосредственно позади семенников на расстоянии 1,0—1,25 мм от переднего конца тела.

Половое отверстие находится на медианной линии, сейчас же позади фаринкса. Половая бурса лежит в медианной плоскости впереди брюшной присоски. Циррус мышечный, способный выпячиваться.

Fig. 2.—*Leipertrema rewelli* Sandosham, 1951.

From Rohde, 1963

Leipertrema vitellariolateralis Rohde, 1963

LEIPERTREMA VITELLARIOLATERALIS ~~n.sp.~~ ROHDE, 1963

Description : This is based on 16 specimens fixed in Bouin's fluid and, after slight pressing, stained with Grenacher's Hemalum.

Body flattened dorsoventrally, longer than broad, broadest in front of middle. Oral sucker subterminal, round. Ventral sucker round, about one quarter to one third of body length behind anterior end, larger than oral sucker. Pharynx well developed, oesophagus present. The short caeca are situated dorsomedially above testes, terminating at level of ovary in anterior half of body. Posterior part of caeca not or only slightly expanded. Two large testes situated opposite each other in anterior half of body, with straight margins, more or less round. Cirrus pouch large, elongated in front of ventral sucker.

Genital pore in front of bifurcation of intestine. Ovary more or less round, at level of posterior margin of testes. Shell gland behind ovary. Two lobed vitellaria present, lying directly behind the testes and always separated from each other by a large space filled with uterine coils. Uterus fills the whole body behind vitellaria. Distinct transverse coils of uterus are present also in front of ovary and at level of ventral sucker. The wide excretory bladder becomes narrower towards the end and opens at the posterior extremity in the midline. Eggs brown, with operculum.

Measurements (*in millimetres*). The antero-posterior diameter of organs is always given before the transverse diameter.

Length : 1·01–1·56 (average 1·23)

Maximum width : 0·49–0·64 (av. 0·56)

Oral sucker : 0·11–0·14 × 0·12–0·14 (av. 0·12 × 0·13)

Ventral sucker : 0·16–0·20 × 0·18–0·19 (av. 0·18 × 0·18)

Pharynx: 0·031–0·052 × 0·040–0·049 (av. 0·043 × 0·046)

Testes : 0·16–0·29 × 0·17–0·24 (av. 0·23 × 0·20)

Cirrus pouch : 0·11–0·17 × 0·08–0·12 (av. 0·15 × 0·09)

Vitellaria : 0·07–0·22 × 0·13–0·21 (av. 0·12 × 0·17)

Ovary : 0·07–0·11 × 0·07–0·12 (av. 0·09 × 0·09)

Eggs : 0·038–0·052 × 0·024–0·035 (av. 0·047 × 0·030)

Host : *Callosciurus notatus* (SQUIRREL)

Location : Intestine

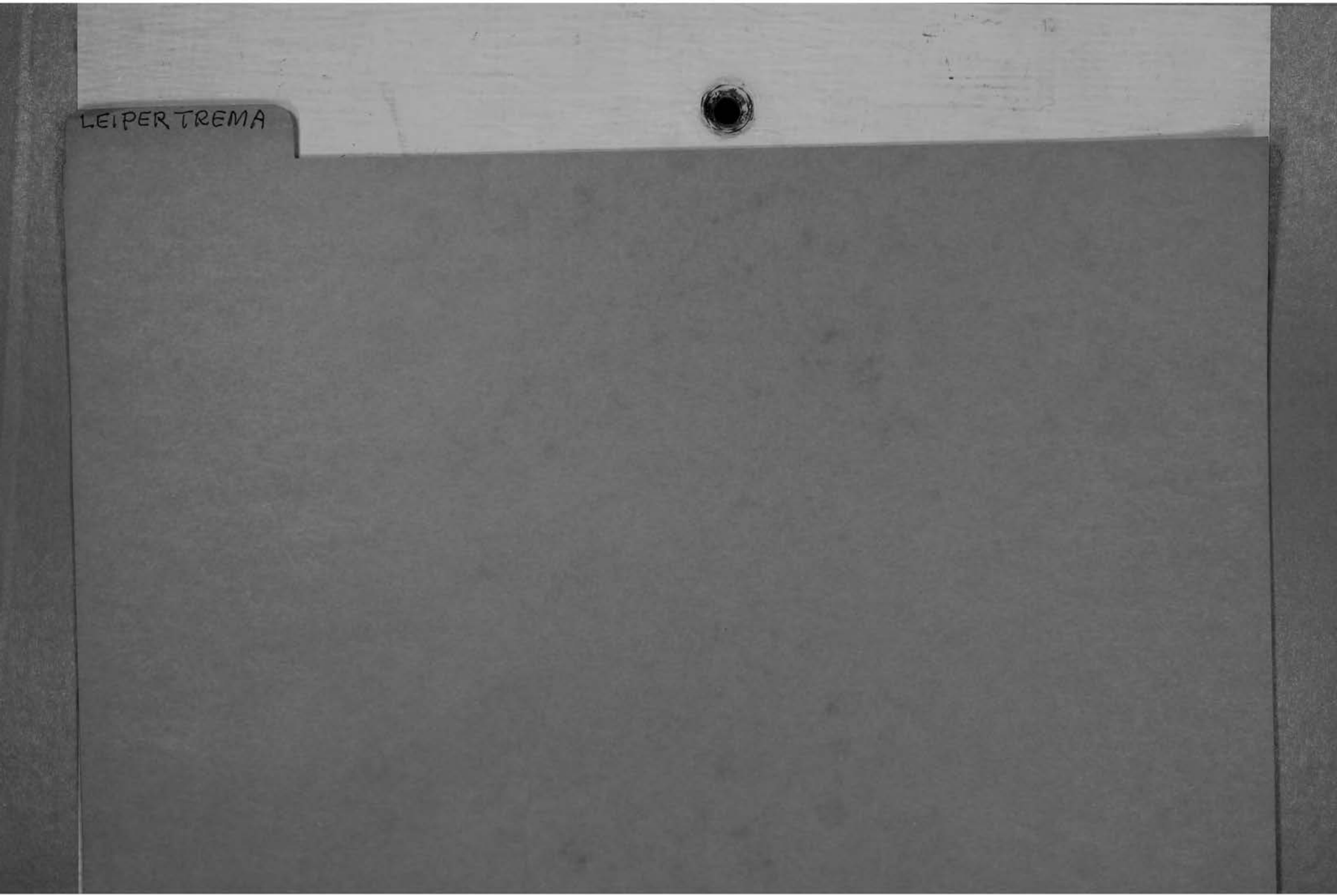
Locality : Subang, Selangor, Federation of Malaya

Syntypes : Helminthological Collection, No. M 101–105, Zoology Department, University of Malaya in Kuala Lumpur, Helminthological Collection of the British Museum (Natural History) (No. 1961.8.31. 1–6 and U.S. National Museum Helminthological Collection (No. 39496).

The main differences between *Leipertrema rewelli* and the new species are :

L. rewelli is 2·5–3 mm. in length and 0·7–0·9 mm. in breadth, while

– OVER –


LEIPERTREMA

Lubens (Travassos, 1920)

Generic diagnosis. — Dicrocoeliidae, Dicrocoeliinae, Eurytrematini: Body flattened oval to elliptical, widest at equatorial or postequatorial level. Oral sucker subterminal, followed by globular pharynx, esophagus short, ceca terminating near posterior extremity. Acetabulum nearly as large as oral sucker and close to it. Testes rounded, symmetrical or nearly so, at acetabular zone or immediately behind it. Cirrus pouch small, claviform, extending slightly posterior to intestinal bifurcation, containing convoluted seminal vesicle, prostatic complex and eversible cirrus. Genital pore at level of pharynx. Ovary rounded, submedian, posttesticular. Receptaculum seminis small. Vitellaria extending along lateral margins of body for about half length of body, commencing at level of acetabulum. Uterus filling most of hindbody; eggs dark brown, small, embryonated. Excretory vesicle tubular, extending to about equator of body, where it receives a pair of collecting arms. These arms are diagonal in strong contrast with those of *Eurytrema pancreaticum*, which are exactly transverse. Parasitic in gall bladder of birds.

Genotype: *L. lubens* (Braun, 1901) Strom, 1940 (Pl. 66, Fig. 800), syn. *Eurytrema robustum* Travassos, 1919; *E. polymorphum* Trav., 1919; *E. intermedium* Trav., 1919; *E. cuyabai* Trav., 1922, in *Rupicola rupicola*, *Icterus*, *Myiozetetes*, *Cyanocorax*, *Xanthornus*, *Laterallus*, *Atelodactinis*, *Progne*, *Harpagus*, *Cacicus*, *Micrastur*, *Trogonurus*, *Falco*, *Glaucidium*, *Zonotrichia*, *Crotophaga*, *Nystalus*, *Milvago*, *Troglodytes*, *Ramphocelus*, *Volatinia*, *Ortygonax*, *Rupornis*, *Cassidix*, *Piranga*; S. and N. America.

Диагноз рода *Lubens* (Travassos, 1919) Strom, 1940

Dicrocoeliinae с широким овальным телом, несколько суженным у переднего конца. Кутикула покрыта мелкими шипиками. Присоски мощно развиты, почти одинаковой величины; брюшная присоска сдвинута к передней части тела. Имеется фаринкс и короткий пищевод. Кишечные стволы несколько не доходят до заднего конца тела. Половое отверстие находится медианно, кпереди от бифуркации кишечника.

Семенники лежат на одном горизонтальном уровне, позади брюшной присоски. Яичник — позади семенников, сдвинут в сторону от медианной линии. Матка чрезвычайно мощно развита, состоит из многочисленных густо расположенных петель, занимающих более $^3/_4$ задней части тела и доходящих до латеральных краев тела. Желточники, состоящие из мелких фолликулов, лежат по сторонам тела и имеют общее протяжение, превышающее половину длины тела. Паразиты печени птиц.

Типичный вид: *Lubens lubens* (Braun, 1901)

Lubens lubens (Braun, 1901) Strom, 1940

Синонимы: *Dicrocoelium lubens* Braun, 1901; *Platynosomum lubens* (Braun, 1901) Travassos, 1916; *Eurytrema lubens* (Braun, 1901) Travassos, 1918; *Eurytrema* (*Lubens*) *lubens* (Braun, 1901) Travassos, 1919.

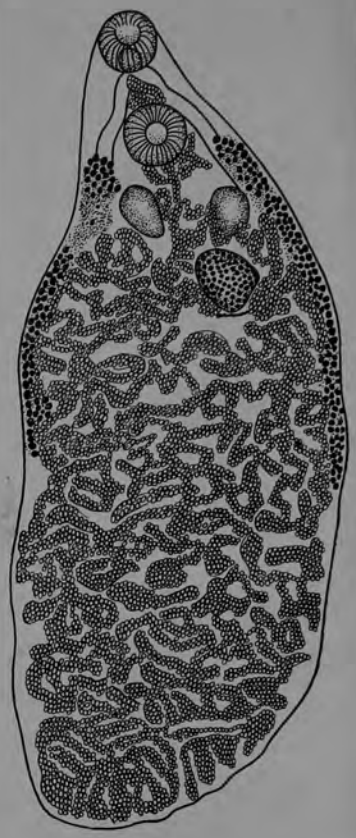
(Рис. 120а)

Хозяева: птицы — *Pipra* (= *Rupicola*) *rupicola* (L.); *Icterus jamacaicroconotus* (Wagl .); *Icterus cayanensis pyrrhopterus* (Vieill.); *Myiozetetes similis similis* (Spix.); *Cyanocorax cyanomelas* (Vieill.); *Xanthornus decumanus decumanus* (Pall.); *Xanthornus decumanus maculatus*; *Laterallus melanophayus melanophayus* (Vieill.); *Atelodactinis bicolor bicolor* (Vieill.); *Progne chalibea domestica* (Vieill.); *Harpagus diodon* (Temm.); *Cacicus haemorrhous haemorrhous* (*L.*); *Cyanocorax chrysops chrysops* (Vieill.); *Micrastur ruficollis* (Vieill.); *Trogonurus curucui curucui* (L.) *Falco albigularis* (Daudin); *Glaucidium brasilianum brasilianum* (Gm.); *Zonotrichia capensis* (Müll.); *Crotophaga ani* (L.); *Nystalus maculosus pallidigula* (Gm.): *Milvago chimachima chimachima* (Vieill.); *Troglodytes musculus musculus* (Naum.); *Ramphocelus carbo carbo*; *Volatinia jacarina jacarina* (L.); *Nystalus chacuri* (Vieill.); *Ortygonax nigricans* (Vieill.); *Rupornis magnirostris magnirostris*.

Локализация: желчный пузырь.

Место обнаружения: Бразилия (от Амазонки до юга Мато Гроссо).

Описание вида «среднего типа» (по Травассосу, 1944). Тело яйцевидной формы, достигающее 7,6—8,3 мм длины при



120а

Genus LUBENS Travassos, 1920

LUBENS LUBENS (Braun, 1901)

FIGURE 38, *e, f*

Dicrocoelium lubens BRAUN, Centralbl. Bakt. Parasit., vol. 29, p. 945, 1901.
Euritrema (Lubens) lubens TRAVASSOS, Arch. Esc. Sup. Agr. e Med. Vet. Nictheroy, vol. 3 (1919), pp. 19–20, 1920.

Lubens lubens (Braun, 1901) STROM, Parasitol. Sborn. Zool. Inst. Acad. Nauk U. S. S. R., vol. 8, p. 180, 1940.

Description.—Body thick and broadly oval, tapering toward extremities, measuring 5.36 to 5.64 mm. long by 2.25 to 2.64 mm. wide, widest near posterior end of vitellaria. Cuticle thick, without spines, transversely wrinkled, and with retractile sensory papillae on the preacetabular margins of body. Oral sucker muscular, subterminal in position, oval in shape and measuring 0.42 to 0.47 mm. in diameter. Acetabulum muscular, 0.42 to 0.50 mm. in diameter, situated relatively close to oral sucker within anterior fourth of body. Ratio of sucker diameters about 1:1. Pharynx large, globular, 0.16 mm. long by 0.19 to 0.21 mm. wide. Esophagus short, straight, approximately equal in length to pharynx. Intestine bifurcating at approximately two-thirds the distance from oral sucker to acetabulum. Ceca narrow, slightly sinuous, passing dorsal to lateral margins of testes and medial margins of vitellaria to terminate about midway between ends of vitellaria and posterior end of body. Excretory pore terminal. Excretory vesicle tubular and voluminous, extending anteriad to about equator of body where it receives a common collecting tubule from each side of body. Each common collecting tubule passing anterolateral to posterior level of testes where it divides into an anterior and posterior main collecting tubule. Genital pore median, at posterior level of pharynx. Testes rounded, approximately equal in size, 0.30 to 0.50 mm. in diameter, situated directly opposite each other, lateral to the acetabulum with their zones lying almost entirely within that of acetabulum. Cirrus sac small, club-shaped, 0.38 mm. long by 0.11 mm. wide (single specimen), extending slightly posterior to intestinal bifurcation, containing convoluted seminal vesicle, prostatic gland cells, and eversible cirrus. Ovary rounded, 0.28 to 0.43 mm. in diameter situated either to right or left side of body close behind the respective testis. Seminal receptacle small, situated dorsal to posteromedial margin of ovary. Mehlis' gland diffuse, located ventral to medial margin of seminal receptacle. Vitellaria composed of numerous oval follicles, situated in lateral margins of body, extending posteriorly from within zone of acetabulum for a distance of 2.67 to 2.96 mm. (or about half the total body length). Vitelline ducts arising at point approximately midway the vitellaria. Uterus very voluminous and greatly convoluted, filling most of postacetabular region of body and sending characteristic loops lateral to testes to anterior level of acetabulum before following a wavy course to genital pore. Mature ova numerous, dark brown, 26μ to 31μ long by 17μ to 23μ wide, fully embryonated when oviposited. Miracidium symmetrical, ciliated, possessing a stylet and having two large oval oppositely situated

From: Denton & Byrd, 1951

Eurytrema lubens (BRAUN, 1901) TRAVASSOS, 1919 (Fig. 45)

Hosts: *Porzana carolina* (Linn.), sora rail (new host record), and *Gallinula chloropus cachinnans* Bangs, Florida gallinule (new host record).

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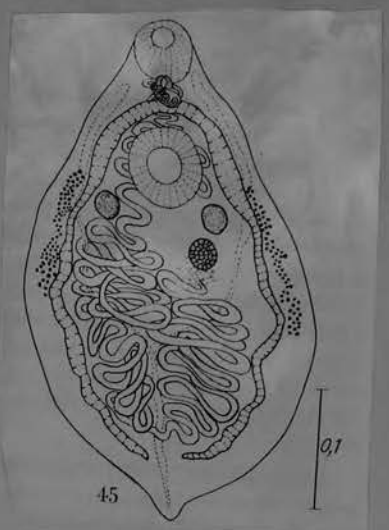
Location: Gall bladder.

Locality: Bonnet Carre Spillway and Lake Penchant, Louisiana (new locality record).

Discussion. DENTON and BYRD (1951) considered *Concinuum* Bhalerao, 1936, *Conspicuum* Bhalerao, 1936, and *Lubens* Travassos, 1920, as defined by STROM (1940), valid genera. However, for reasons stated previously, we prefer to follow STUNKARD's (1947, 1950) excellent studies on the taxonomy of these forms until adequate life history data are available for a valid revision of this group.

DENTON and BYRD (1951) reported *E. lubens* from a bronzed grackle, *Cassidix mexicanus prosopidicola*, and a scarlet tanager, *Piranga olivacea*, in Texas and Virginia, respectively. *E. lubens* was previously known only from birds in Brazil. Specimens of *E. lubens* were recovered from sora rails, *Porzana carolina*, and Florida gallinules, *Gallinula chloropus*, in Louisiana, constituting new host and locality records for this trematode.



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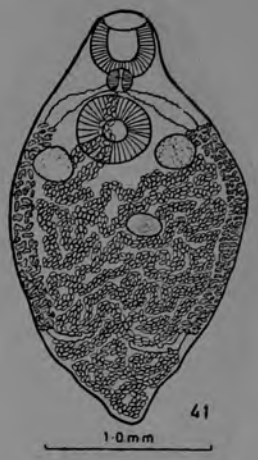
Lubens lubens (Braun, 1901) Shtrom, 1940

(Fig. 41)

The following study is based on three worms collected from the gall bladder of one specimen of *Coturnix coturnix* collected in Peshawar.

The body of the worm is roughly spindle-shaped with maximum breadth at the equator. The posterior extremity is comparatively narrower than the anterior extremity. The tegument is unarmed but papillated. The oral sucker subterminal and oval. The ventral sucker lies close behind the oral sucker, at a distance of 0.454 – 0.484 mm from the anterior end. It is spherical and slightly larger than the oral sucker. There is no prepharynx. The pharynx is globular and much smaller than the oral sucker. The oesophagus is indistinct. The intestinal fork lies at a distance of 0.454 – 0.484 mm from the anterior end. The intestinal caeca extend to about the anterior four-fifths of the body. They are somewhat sinuous and distally turn slightly inwards.



The testes are oval to rounded, almost symmetrically placed along the posterolateral sides of the ventral sucker, at a distance of 0.757 – 0.818 mm from the extremity. They are intercaecal and have smooth surface. The intertesticular area varies from 0.484 – 0.515 mm. The cirrus pouch is small, oblong and lies along the pharynx. Posteriorly it extends slightly beyond the intestinal fork. Enclosed within the cirrus pouch are a convoluted vesicula seminalis, prostatic complex, ductus ejaculatorius and a short cirrus. The common genital opening lies immediately in front of the pharynx. The ovary is transversely oval, intercaecal, submedian and equatorial or immediately poste-equatorial in position. It has a smooth surface. The vitellaria are follicular, extending from the mid-level of the ventral sucker to about one-fifth of the total body length from the posterior end. For the most part they are extracaecal. The uterus is extensive occupying most of the postacetabular region of the body. The eggs are small, numerous, oval, dark brown and embryonated. The excretory vesicle is tubular.

MEASUREMENTS

(All measurements in millimetres)

Body length	1.908 – 2.424
Body breadth	0.757 – 1.363
Oral sucker	0.313 – 0.392 × 0.294 – 0.343
Ventral sucker	0.323 – 0.382 × 0.352 – 0.421
Pharynx	0.088 – 0.117 × 0.117 – 0.147
Ovary	0.107 – 0.127 × 0.137 – 0.186
Left testis	0.176 – 0.215 × 0.137 – 0.156
Right testis	0.137 – 0.196 × 0.176 – 0.225
Cirrus pouch	0.102 – 0.071
Eggs	0.025 – 0.030 × 0.015 – 0.020

Host: *Coturnix coturnix*
Location: Gall bladder
Locality: Peshawar area

DISCUSSION

The worms under study resemble *Lubens lubens* (Brauns, 1901) Shtrom, 1940 in all essential features and have been identified as such. This species is being reported for the first time from Pakistan.

From BHUTTA AND KHAN 1975

Stomylotrematidae
Dicrocoeliidae

Familia DICROCOELIIDAE Odhner, 1911
Subfamilia Dicrocoeliinae Looss, 1899
Género *Lubens* (Travassos, 1919) Strom, 1940

Lubens centroamericanum ~~n. sp.~~ Brenes, Arroyo, et Muñoz, 1966

Para la presente descripción, se contó con dos ejemplares teñidos con carmín de Grenacher y montados en preparación total.

Tremátodos de cuerpo ovalado con cutícula lisa que miden de 8,47 a 9,45 mm de largo por 3,51 a 4,69 mm de ancho.

La ventosa oral es copiforme y mide de 0,630 a 0,720 mm de largo por 0,675 a 0,828 mm de ancho. El acetábulo es grande y musculoso, se sitúa en el tercio anterior del cuerpo del parásito y mide de 0,660 a 0,855 mm de largo por 0,820 a 0,972 mm de ancho y dista de la extremidad anterior de 1,37 a 1,38 mm.

La relación entre el tamaño de las dos ventosas es de 1:1 — 1:1,2. La faringe es subesférica y musculosa, mide de 0,199 a 0,207 mm de largo por 0,225 a 0,279 mm de ancho. El esófago se observa curvado y mide de 0,243 a 0,296 mm de largo por 0,126 a 0,166 mm de ancho.

Las ciegos intestinales ligeramente sinuosos se extienden simétricamente a ambos lados midiendo el derecho 7,29 a 8,70 mm de longitud por 0,15 a 0,18 mm de ancho y dista de la extremidad posterior de 0,45 a 0,53 mm; el izquierdo mide 7,26 a 8,60 mm de largo por 0,13 a 0,18 mm de ancho y dista de la extremidad posterior 0,54 mm.

El poro genital se localiza en la porción distal de la faringe y está situado de 0,765 a 0,810 mm de la extremidad anterior.

La bolsa del cirro es piriforme y se sitúa en sentido oblicuo entre la faringe y la bifurcación de los ciegos; contiene vesícula seminal, próstata y cirro, y mide de 0,259 a 0,321 mm de largo por 0,166 a 1,77 mm de ancho.

Los testículos son masiformes y ovoides, situados en la misma zona en posición postacetabular, separados entre sí por algunas asas uterinas. El testículo derecho mide 0,360 a 0,468 mm de largo por 0,432 a 0,630 mm de ancho; y el izquierdo mide de 0,378 a 0,426 mm de largo por 0,468 a 0,720 mm de ancho.

El ovario es subesférico y se sitúa debajo del testículo izquierdo y ligeramente en el mismo campo, mide 0,342 a 0,351 mm de largo por 0,405 a 0,603 mm de ancho. El receptáculo seminal se encuentra en contacto con el ovario, pero únicamente en su borde izquierdo e inferior, mide 0,270 mm de largo por 0,261 mm de ancho.

La glándula de Mehlis se observa cerca del ovario como una masa irregular; las glándulas vitelinas están formadas por numerosos folículos que se extienden desde el nivel posterior del acetábulo hasta más abajo del ecuador ocupando los dos cuartos medios del cuerpo y miden la derecha de 3,51 a 4,59 mm de largo y dista de 3,2 a 3,3 mm de la extremidad posterior y la izquierda mide de 3,53 a 4,26 mm de largo y dista de la misma extremidad de 2,7 a 3,5 mm.

2

El útero está constituido por dos ramas, una descendente y otra ascendente que forman asas que se entrecruzan y ocupan casi todo el espacio comprendido entre los testículos y la extremidad posterior del cuerpo del parásito; termina en un metratermo que se extiende de la región del acetábulo hasta el poro genital; los huevecillos son operculados y miden 0,035 mm de largo por 0,021 a 0,027 mm de ancho.

HUÉPED: *Calocitta formosa*, "urraca".
LOCALIZACIÓN: Vesícula biliar.
DISTRIBUCIÓN GEOGRÁFICA: Tilarán, Guanacaste.
EJEMPLARES: Holotipo y paratipo en la colección helmintológica del Departamento de Parasitología, Facultad de Microbiología, Universidad de Costa Rica, bajo el número 200-41.

DISCUSIÓN: Como este género se señala por primera vez para Centro américa, presentamos una lista de las especies válidas con su distribución geográfica y la familia de su huésped:

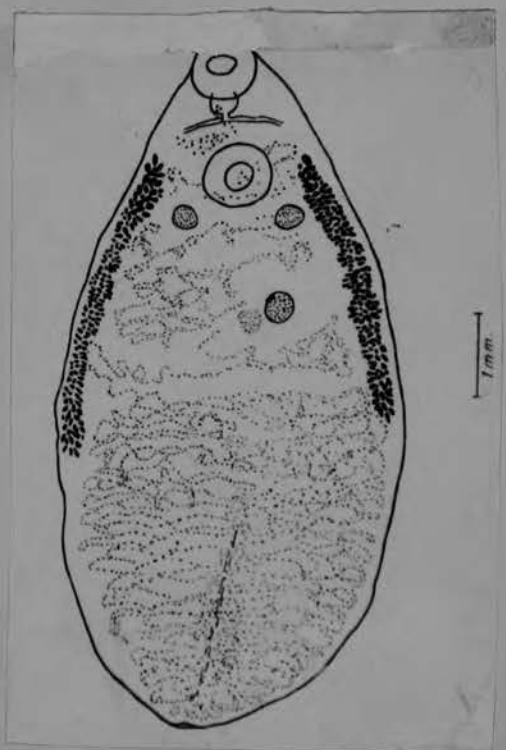
VENEZUELA: *L. phelpsi* Heyneman, Brenes & Díaz-Ungría, 1960 (Cotingidae).
COSTA RICA: *L. centroamericanum*, Brenes, Arroyo & Muñoz, 1966 (Corvidae).
BRASIL: *L. lubens* (Braun, 1901) Strom, 1940 (Icteridae); *L. cuyabai* Travassos, 1922 (Icteridae); *L. intermedium* Travassos, 1919 (Hirundinidae); *L. polymorphum* Travassos, 1919 (Tyrannidae); *L. robustum Travassos*, 1919 (Falconidae).

Al comparar las preparaciones de nuestros ejemplares con las especies aceptadas actualmente por SKRJABIN (5) en su revisión de la familia Dicrocoeliidae y citadas anteriormente, encontramos las siguientes diferencias: (1) forma y tamaño diferentes; (2) mayor tamaño del acetábulo; (3) diferente forma de ovario, testículos y espermateca; (4) diferente posición relativa de ovario, testículos y espermateca; (5) forma y extensión de las glándulas vitelinas; (6) diferente huésped; (7) diferente distribución geográfica.

Eurytrema lubens (Braun,1901) Dicrocoeliidae to Lubens
Eurytrema robustum Travassos,1919

8 to 9 by 4 to 5 mm.
Oral sucker 0.7
Acetabulum 0.7 ; 0.5 from oral sucker.
Esophagus short
Pharynx about 0.2 in diameter
Genital pore anterior to bifurcation
Testes rounded, symmetrical, preequatorial.
Cirrus sac about 0.38 in length.
Ovary about same shape as testes, sometimes a little larger.
posttesticular
Vitellaria extracecal from acetabular zone in equator region.
Eggs 28 to 35 by 21 to 28 μ.
Host: Harpagus dioton (a bird)
in gall bladder
Locality: Brazil
Reference: Arch.exc.Agai. Med.Vet.,3:20-21. 1919

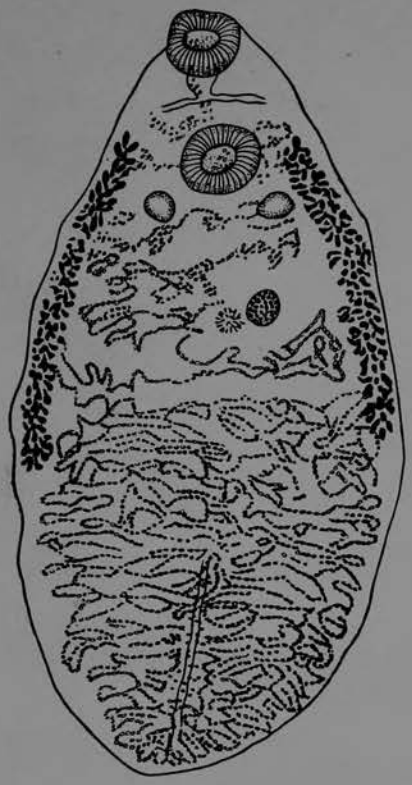
Travassos separated this species from E.lubens on the basis of larger size and absence of spines. It is, however, a synonym of Platynosomum lubens (Braun,1901) Looss,1907 (Dicrocoelium lubens Braun,1901) also from Brazil (from Pipra rupricola)
See:



Lubens robustum (Travassos,1919)

Syn.: Eurytrema robustum Trav.,1919
E.(Lubens) robustum (Trav.,1919)

Host: Harpagus diodon



124

124. *Lubens robustum* (Travassos, 1919) (по Травассосу, 1919)

Lubens cuyabai (Travassos, 1922)

Синонимы: *Eurytrema cuyabai* Travassos, 1922; *Eurytrema* (*Lubens*) *cuyabai* (Travassos, 1922) Bhalerao, 1936

(Рис. 121)

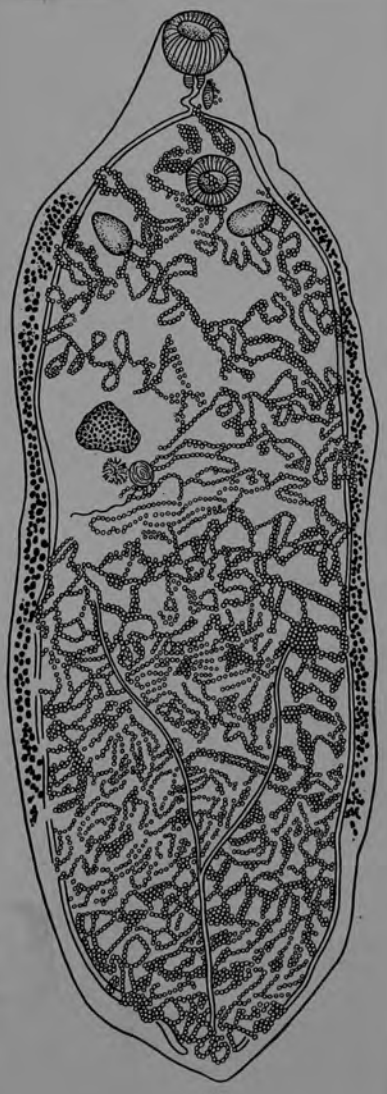
Хозяин: птица — *Xanthornus Croconotus*.

Локализация: желчный пузырь.

Место обнаружения: Бразилия.

Описание вида (по Травассосу, 1922). Тело достигает 6 мм длины и 2 мм ширины. Кутикула покрыта нежными шипиками. Диаметр ротовой присоски 0,38 мм, брюшной 0,41 мм. Круглый фаринкс достигает 0,17 мм в диаметре. Длина пищевода 0,39 мм. Прямые кишечные стволы доходят почти до заднего конца тела. Половое отверстие открывается впереди от бифуркации кишечника. Семенники круглые, располагаются преэкваториально, на одном горизонтальном уровне позади брюшной присоски. Размер семенников: 0,26 × 0,17 мм и 0,27 × 0,20 мм. Круглый яичник располагается на значительном расстоянии позади правого семенника. В зоне яичника лежат тельце Мелиса и семяприемник. Желточники располагаются латеральнее кишечных стволов и простираются от брюшной присоски до задней четверти длины тела. Состоят они из небольших фолликулов. Матка очень мощная, заполняет всю заднюю часть тела паразита.

Литература: Travassos, 1922; Bhalerao, 1936; Travassos, 1944.



Lubens intermedium (Travassos, 1919)

Синонимы: *Eurytrema intermedium* Travassos, 1919; *Eurytrema* (*Lubens*) *inter medium* (Travassos, 1919)

(Рис. 122)

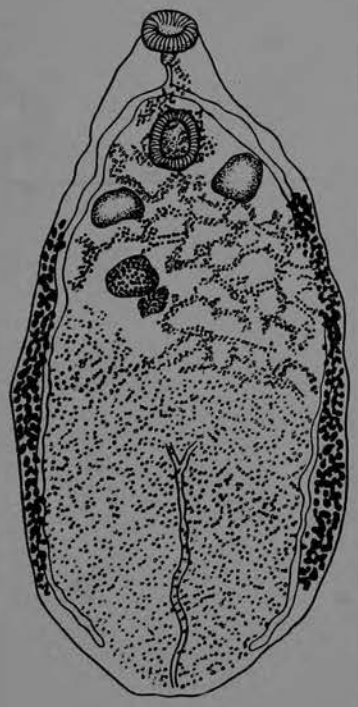
Хозяин: птица — *Progne chalibea*.

Локализация: желчный пузырь.

Место обнаружения: Бразилия.

Описание вида (по Травассосу, 1919). Тело 6—7 мм длины при ширине 3,5—4,0 мм. Ротовая присоска 0,5 мм в диаметре; фаринкс 0,19 мм. Имеется пищевод. Кишечные стволы имеют слабо волнистое очертание и доходят почти до заднего конца тела. Брюшная присоска 0,6 мм в диаметре. Половое отверстие впереди от бифуркации кишечника. Половая бурса малого размера. Семенники, около 0,3 мм в диаметре, лежат на одной горизонтали позади брюшной присоски. Они неправильно круглой формы, но не резко лопастные. Яичник лежит в передней половине тела, позади правого семенника, отделяется от последнего петлями матки. Тельце Мелиса находится непосредственно позади яичника. Желточники лежат экстрацекально; начинаются они тотчас позади семенников и, направляясь кзади, немного не доходят до слепых концов кишечника. Матка чрезвычайно мощно развита, занимает интрацекальную зону и доходит до заднего конца тела. Яйца 0,028—0,035 мм длины и 0,021 — 0,028 мм ширины.

Литература: Travassos, 1919; Travassos, 1944.



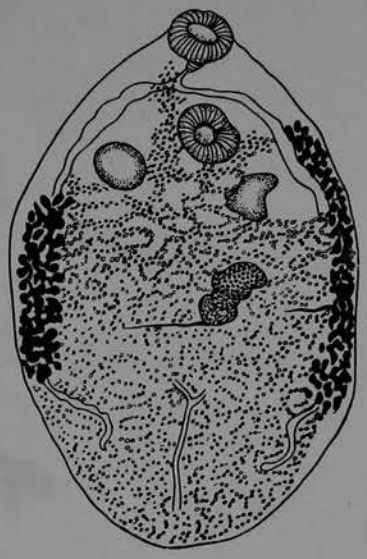
Lubens polymorphum (Travassos, 1919)

Синонимы: *Eurytrema polymorphum* Travassos, 1919; *Eurytrema* (*Lubens*) *polymorphum* (Travassos, 1919)

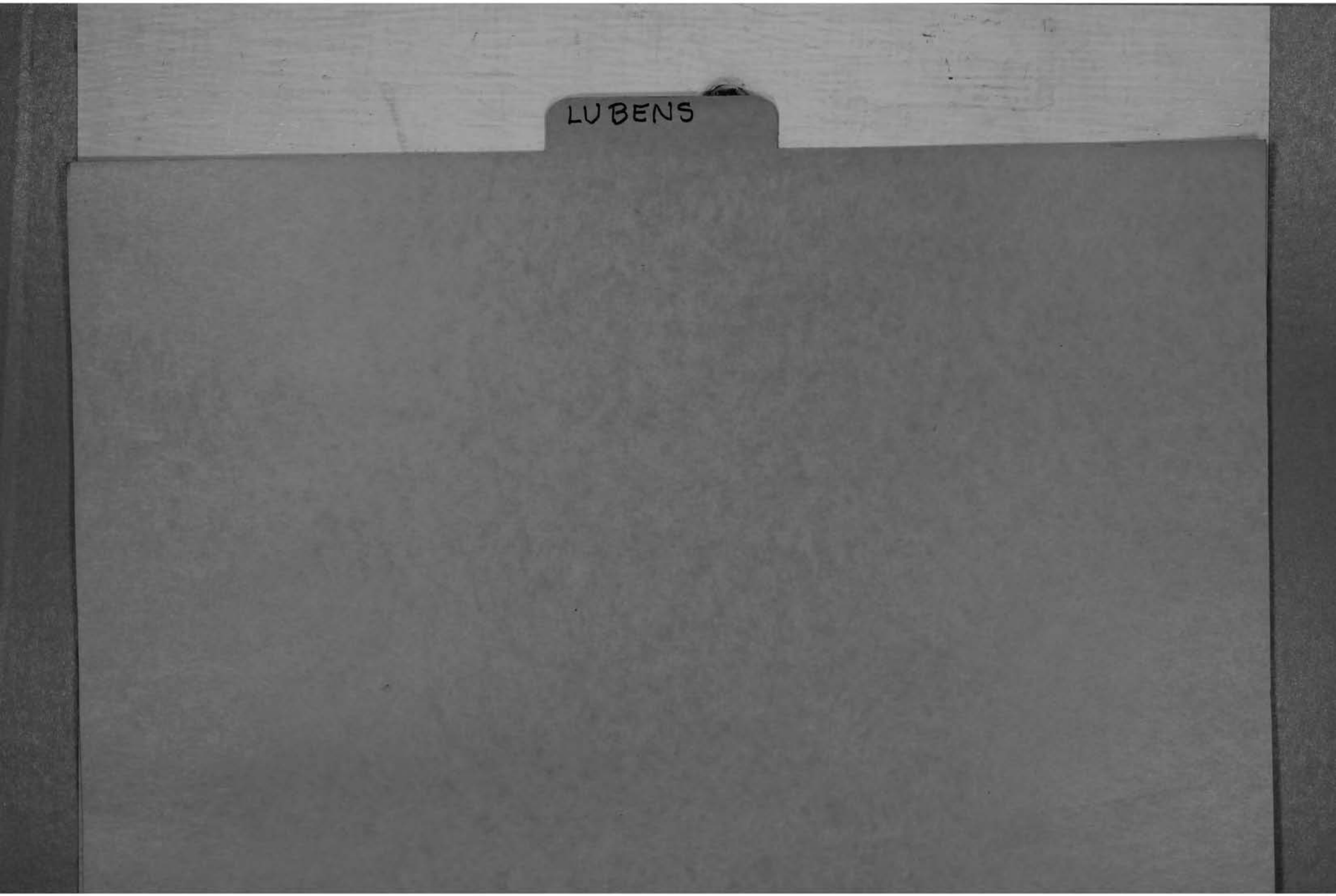
(Рис. 123)

Хозяин: птица — *Myiozetetes similis.*

Локализация: желчный пузырь.



123


LUBENS

Lutztrema Travassos, 1941

Generic diagnosis. — Dicrocoeliidae, Dicrocoeliinae, Lutztrematini: **Body long**, slender, irregularly papillated. Acetabulum larger than oral **sucker** (1 : 1—3), in anterior third of body. Oral sucker subterminal, **surmounted by a small preoral** lobe, followed by pharynx. Esophagus continued into a **single**, comparatively long, median, zigzag cecum or **rudimentary double ceca**. Testes tandem or diagonal, postacetabular, **may or may not be separated** one from the other by uterine coils. Cirrus **pouch claviform**, pre-acetabular, containing **winding** seminal vesicle, **pars prostatica** and cirrus. Genital pore about **halfway** between two **suckers**, or nearer to pharynx. Ovary median or submedian, immediately **posttesticular**. Receptaculum seminis and Laurer's canal present. **Vitelline follicles large**, few in number, postovarian. Uterus occupying **most of hindbody**, passing between ovary and posterior testis. Flame **cell formula of** $2 \times 6 \times 2$ type in *L. monenteron* — Denton et Byrd (1951). **Parasitic** in bile ducts and bladder of birds.

Genotype: *L. obliquum* (Travassos, 1917) Trav., 1941 (Pl. 71, Fig. 860), in *Turdus amaurochalinus, T. leucomelas, T. rufiventris rufiventris, Platycichla flavipes, Archiplanus solitarius, Uroleuca cristatella;* Brazil.

Other species:

L. alaudae (Layman, 1926) Travassos, 1944, in *Alauda arvensis;* Russia.

L. attenuatum (Duj., 1845) Travassos, 1944, in *Merula merula, M. obscura;* Palearctic zone, Japan.

L. colorosum (Patwardhan, 1935) Travassos, 1944, *Syn. Lyperosomum bhattacharyai* Pande, 1939, in *Temenuchus pagadorum, Sturnopastor contra;* India.

L. donicum (Issaitschikoff, 1919) Travassos, 1944, in *Chelidon urbica, Turdus merula;* Russia.

L. insigne Travassos, 1941, in *Platycichla flavipes;* Brazil.

L. kakea (Bhalerao, 1926) Travassos, 1944, in *Corone insolens;* India.

L. magnitestium (Layman, 1922) Travassos, 1944 in *Merops apiaster;* Russia.

L. marinholutzi Travassos, 1941, in *Progne chalybea domestica;* Brazil.

L. microstomum Denton et Byrd, 1951, in *Cyanocitta cristata;* U.S.A. Molluscan hosts: *Bulimulus alternatus mariae, Deroceras reticulatum* and *D. laeve.*

L. monenteron (Price et McIntosh, 1935) Travassos, 1941, in *Turdus migratorius, Sialia sialia, Bonasa umbellus, Tyrannus tyrannus; Mimus polyglottus, Toxostoma rufum;* N. America.

L. sturni Skrjabin et Evranova, 1952, in *Sturnus vulgaris;* N. America.

L. transversogenitale (Layman, 1922) Trav., 1944, syn. *Lyperosomum t. turkestanicum* Layman, 1926, *L. t. sylvestris* Semenow, 1927, *L. t. hispanicum* Lopéz-Neyra, 1941, in *Cotyle riparia, Hedymela atricapilla, Caprimulgus europaeus, C. ruficollis, Phasianus colchicus;* Russia.

L. transversum (Trav., 1917) Trav., 1941, in *Tyrannus melanocholicus melanocholicus, Megarhynchus pitangua, Empidonomus aurantioatrocristatus, Passer domesticus;* Brazil.

L. verrucosum Travassos, 1941, in *Progne chalybea domestica;* Brazil.

-OVER-

The generic diagnosis, as given by Yamaguti (1958) has to be revised as follows:

Lutztrema

Dicrocoeliidae, Dicrocoeliinae, Lutztrematinae. Body long, slender. Acetabulum smaller or larger than oral sucker, in anterior third of body. Oral sucker subterminal, followed by pharynx. Esophagus continued into a single, comparatively long, median cecum or rudimentary ceca. Testes symmetrical, tandem or diagonal, postacetabular, may or may not be separated from the other by uterine coils. Cirrus pouch claviform, preacetabular, containing winding seminal vesicle, pars prostatica, and cirrus. Genital pore about halfway between two suckers, or nearer to pharynx. Ovary median or submedian, immediately post testicular. Receptaculum seminis and Laurer's canal present. Vitelline follicles large, few in number, postovarian or beginning at the testicular level. Uterus occupying most of hind body, passing between testes or between ovary and posterior testis, may fill most of space from level of cirrus pouch to level of testes. Excretory vessel tubular. Parasitic in bile ducts and bladder of birds and bats.

Genotype *L. obliquum* (Travassos, 1917) Trav., 1941.

FROM ROHDE (1966)

LUTZTREMA Travassos

Generic diagnosis. Dicrocoeliidae, Dicrocoeliinae. Body elongate or relatively broad, with pre-oral lobe. Body surface with or without papillae or spines. Acetabulum larger than oral sucker or suckers sometimes equal. Single caecum, or with one of caeca rudimentary and not extending beyond acetabulum; caecum relatively long, median, in form of zigzag. Genital pore about half-way between suckers. Testes post-acetabular or almost acetabular, tandem or diagonal. Ovary post-testicular. Vitelline follicles large, post-ovarian, lateral, sometimes converging anteriorly. Uterus occupying most of hindbody, with coils between ovary and testes. Parasitic in liver and gall bladder of birds and mammals.

FROM ANGEL AND PEARSON, 1977

Lutziella n. subgen. ROHDE, 1966

Dicrocoeliidae, Dicrocoeliinae, Lutztrematini: body long, slender. Acetabulum smaller than oral sucker, in anterior third of body. Oral sucker subterminal. Pharynx small, followed by long digestive tract which becomes gradually wider and bifurcates into two rudimentary ceca immediately in front of ovary. Testes symmetrical, at level of posterior margin of acetabulum, separated by uterine coils. Cirrus pouch median, preacetabular, genital opening some distance behind pharynx. Ovary submedian, posttesticular. Receptaculum seminis overlapping ovary and behind it. Laurer's canal present. Vitellaria lateral, from level of testes to short distance behind middle of body. Vitellarium on side of ovary shorter than that on opposite side. Uterus occupies most of hindbody, passing between testes and filling space between level of posterior margin of cirrus pouch and testes. Excretory vessel tubular. Parasitic in gall bladder of Chiroptera.

TYPE SPECIES: *Lutztrema* (*Lutziella*) *microacetabulare*.

Lutztrema obliquum (Travassos, 1917) Travassos, 1941

Синонимы: *Lyperosomum obliquum* Travassos, 1917; *Brachylecithum obliquum* (Travassos, 1917), Strom, 1940

(Рис. 125)

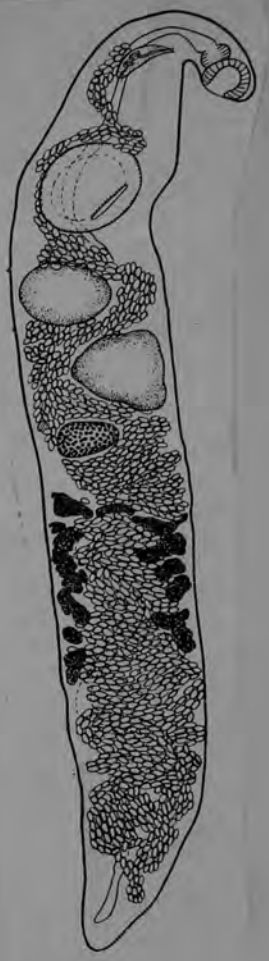
Хозяева: птицы — *Turdus amaurochalinus* Cab., *T. leucomelas* Vieill., *T. rufiventris* Vieill., *Archiplanus solitarius* (Vieill.).

Локализация: желчный пузырь.

Место обнаружения: Бразилия.

Описание вида (по Травассосу, 1941). Длина тела 2,3—4,6 мм; максимальная его ширина на уровне семенников достигает 0,33—0,55 мм. Тело веретеновидное или колбовидное, очень удлиненное, с суженными концами. Кутикула без шипов, с маленькими неправильно расположенными сосочками. Мощная брюшная присоска крупнее ротовой, расположена в передней части тела; ее диаметр достигает 0,20—0,28 мм. Ротовая присоска располагается субтерминально; впереди нее имеется маленький отросток тела в форме дорзальной губы. Диаметр ротовой присоски достигает 0,09—0,15 мм. Соотношение размеров присосок 1 : 1,66—2,38. За ротовой присоской следует относительно мощный фаринкс диаметром около 0,045—0,060 мм. Пищевод переходит в одинарный слепой кишечный ствол. Последний имеет извилистую форму, проходит дорзально от брюшной присоски, делает одну петлю между семенниками, а вторую между семенниками и яичником. Позади яичника кишечный ствол описывает несколько петель и оканчивается у заднего конца тела. Обычно, его совершенно закрывают петли матки, так что лишь у немногих экземпляров его удается хорошо рассмотреть. Половое отверстие лежит медианно, приблизительно на равном расстоянии между обеими присосками. Хорошо развитая половая бурса содержит циррус, простатическую часть и семенной пузырек. Длина половой бурсы 0,15—0,28 мм при максимальной ширине 0,06—0,09 мм. Семенники имеют неправильные очертания, круглые, эллиптические или почти треугольные. Они достигают 0,19 × 0,11 мм и 0,34—0,24 мм. Передний семенник обычно бывает меньше заднего, причем его максимальный диаметр — поперечный. Яичник правильной поперечно-овальной формы, лежит позади заднего семенника. Он достигает 0,17 × 0,13 мм и 0,29 × 0,12 мм. Лауреров канал не наблюдался. Тельце Мелиса относительно большое, лежит позади яичника и достигает 0,13 × 0,06 мм. Семяприемник слабо заметен, лежит в зоне тельца Мелиса. Желточники располагаются латерально, состоят из немногочисленных, относительно больших фолликулов; обычно более развиты с одной стороны. Они расположены на середине тела и достигают около 0,98—1,6 мм длины. Матка состоит из одной нисходящей и одной восходящей ветви, занимает всю область тела позади желточников, а также участок между ними. Восходящая ветвь образует петли рядом с яичником и проникает между последним и задним семенником, между семенниками и, наконец, между передним семенником и брюшной присоской. Кпереди от брюшной присоски она образует немногочисленные маленькие петли. Зрелые яйца темно коричневого цвета, снабжены крышечками и достигают 0,34 — 0,38 мм длины при максимальной ширине 0,022—0,024 мм. Экскреторный пузырь простой, очень сильно удлиненный.

Травассос без достаточных оснований считает, что паразит, описанный Прайсом и Мак Интошем в 1935 г., под именем *Lyperosomum monenteron*, чрезвычайно близок к настоящему виду и, вероятно, является его синонимом. Он говорит, что единственное заметное различие заключается в более коротком кишечном выросте и несколько меньшем размере яиц.



125

Литература: Travassos, 1917, стр. 737; Штром, 1940; Travassos, 1941, стр. 335—343; Travassos, 1944, стр. 174.

From: Jimenez-Quiros & Arroyo,1960
Rev.Biol.Trop., 8(1):53-61.

Familia.—DICROCOELIIDAE Odhner, 1911
Subfamilia.—Dicrocoeliinae Looss, 1899
Lutztrema obliquum (Travassos, 1917) Travassos, 1941.

Trematodos de pequeña talla, de cuerpo fusiforme o claviforme muy alargado y con las extremidades atenuadas. Cutícula sin espinas y con papilas pequeñas dispuestas irregularmente. Mide 3,810 mm de largo por 0,396 mm de ancho al nivel de la zona acetabular. Ventosa oral sub-terminal que mide 0,133 mm de largo por 0,129 mm de ancho y que posee una pequeña prolongación del cuerpo, hacia adelante, en forma de labio. Acetábulo robusto y musculoso de mayor tamaño que la ventosa oral; mide 0,295 mm de largo por 0,295 mm de ancho. Relación entre las ventosas 1: 2,2. Faringe colocada inmediatamente debajo de la ventosa oral, relativamente fuerte y que mide 0,041 mm de largo por 0,029 mm de ancho. Esófago, que se continúa en ciego único, y que mide de la faringe al inicio de la bolsa del cirro 0,148 mm de largo por 0,029 mm de ancho. Ciego único sinuoso, que pasa detrás del acetábulo, visible parcialmente entre los testículos, éstos y el ovario, perdiendo su visibilidad detrás de las asas uterinas. Poro genital mediano, aproximadamente equidistante entre las ventosas. Bolsa del cirro bien desarrollada y que contiene el cirro, próstata y vesícula seminal. Mide 0,189 mm de largo por 0,078 mm de ancho. Testículos sub-triangulares de contornos ligeramente irregulares, situados de manera que coinciden parcialmente en los mismos campos y en la misma zona, presentando discreta oblicuidad recíproca. Miden, el anterior 0,198 mm de largo por 0,258 mm de ancho y el posterior 0,244 mm de largo por 0,281 mm de ancho. El ovario, de contorno regular, elipsoide, transversal, está situado debajo del testículo posterior. Mide 0,133 mm de largo por 0,161 mm de ancho. Glándula de Mehlis situada debajo del ovario, en posición central. Mide 0,050 mm de largo por 0,048 mm de ancho. Vitelinas laterales, constituídas por folículos relativamente voluminosos y en escaso número, situadas en el tercio medio del parásito. Se extienden: la izquierda 0,551 mm y la derecha 0,454 mm. Distan de la extremidad posterior: la izquierda 2,030 mm y la derecha 2,080 mm. El útero, bien desarrollado, ocupa toda el área del cuerpo debajo de las vitelinas y el área situada entre éstas. Tiene una rama descendente y otra ascendente, ésta última forma asas que bordean el ovario insinuándose entre éste y el testículo posterior, pasando luego entre ambos testículos y finalmente por el acetábulo, para terminar encima de éste en el poro genital. Huevos de color castaño oscuro, operculados, y que miden 0,034 mm de largo por 0,020 mm de ancho. Vesícula excretora no se observa en nuestros ejemplares.

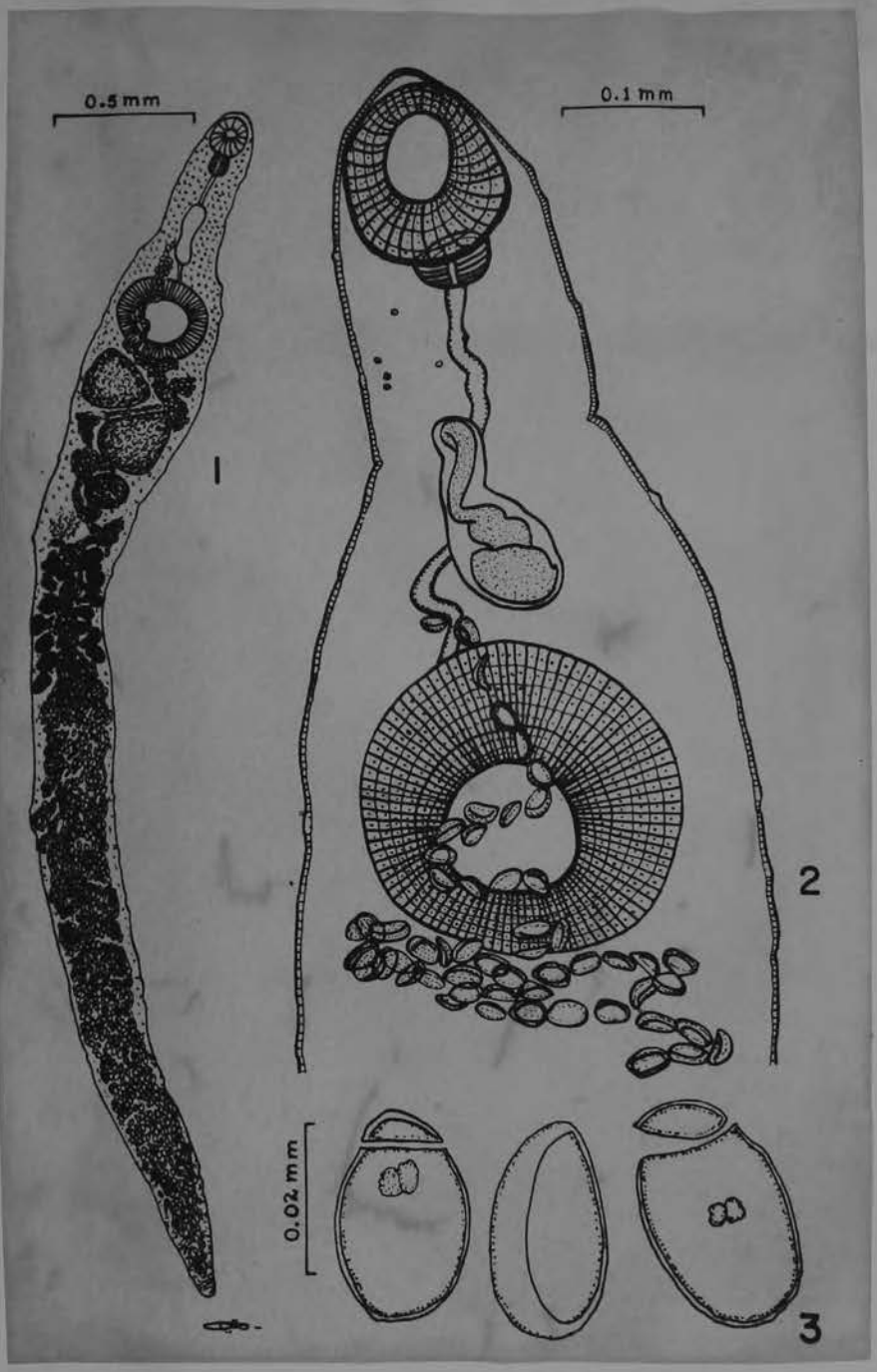
HUÉSPED: *Gymnostinops montezuma* (Lesson) Sclater.

LOCALIZACIÓN: Conductos biliares.

DISTRIBUCIÓN GEOGRÁFICA: Chitaría, Peralta, Provincia de Cartago, Costa Rica.

EJEMPLARES: En la colección helmintológica del Laboratorio de Helmintología, Departamento de Parasitología, Facultad de Microbiología, Universidad de Costa Rica, bajo el No. 200-25.

DISCUSIÓN: Hemos clasificado los especímenes de Costa Rica con base en el trabajo de TRAVASSOS (3) como *Lutztrema obliquum*. Unicamente difieren de los ejemplares brasileños en algunos detalles mensurables, y el haber sido encontrados en un nuevo huésped.


0.5 mm
1
0.1 mm
2
0.02 mm
3

ANGEL AND PEARSON, 1977

Lutztrema ailuroedi n.sp.

FIGS 12–14

Host. *Ailuroedus crassirostris.*

Locality. Mt Glorious, Qld, 16.i.1957, 30.i.1957 (collected *K. E. Webber*), 29.x.1962.

Location in host. Bile duct and at mouth of gall bladder.

Incidence. From 7 to many specimens, in all 5 green catbirds examined.

Holotype. SAM V108.

Paratypes. SAM V109, V110, V111.

Description based on live worms and on balsam mounts of 8 whole worms and 3 anterior ends (16.i.1957). Measurements of worms from two collections, 29.x.1962 (2 birds) and 30.i.1957, with some additional information on these whole mounts.

Description

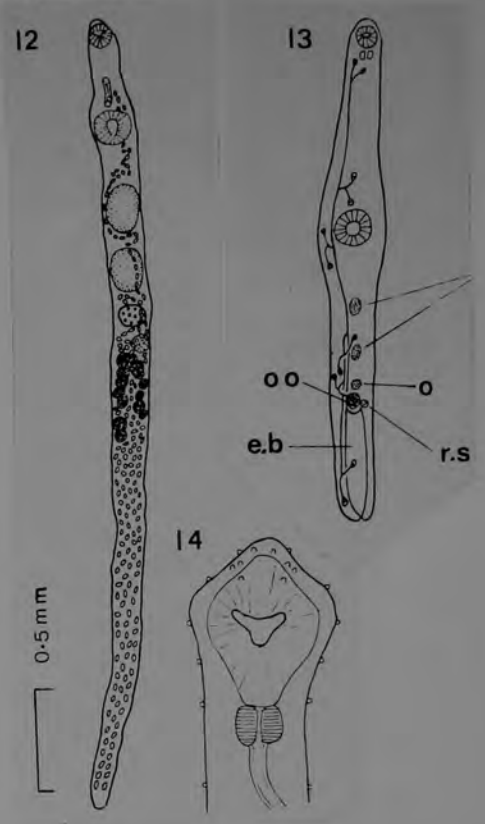
Body elongate, almost cylindrical; forebody much narrower, bent back dorsally from protruding acetabulum; in whole mounts width generally slightly greater at level of vitellaria. Length 3.30–4.28 mm (3.80), width 0.221–0.272 mm (0.238) for 5 worms, depth 0.214 mm for 3 worms. Ratio of width to length 1:14–1:18. (In 2 hosts collected 29.x.1962, 8 mature trematodes measure 2.89–4.18 mm (3.30), and in one host collected 30.i.1957, 7 worms are 2.10–2.92 mm (2.60). Papillae scattered over length of body; most numerous on preoral lobe.

Suckers forming deep cups. Acetabulum larger than oral sucker, in anterior seventh to anterior fifth of body; 141–200 μm (176) long x 153–188 μm (172) wide, and (in 3 specimens) 165–200 μm (188) deep. Oral sucker 106–129 μm (114) long x 94–100 μm (96) wide, and (in 3 specimens) 94 μm deep. Sucker ratio (using mean diameters of length and width, in five specimens) 1:1.5–1:1.7). Pharynx 39–50 μm (47) x 53–63 μm (57) and (3 specimens) 55–60 μm (59) deep. Caecum dorsal to cirrus sac and to middle or side of acetabulum, sinuous dorsal to and between testes, dorsal to ovary and excretory bladder, ending less than half way from ovary to posterior end.

Excretory pore terminal. Excretory bladder I- shaped, in young specimens reaching nearly to ootype; common collecting tubules arising from anterior end of bladder; at level between testes giving off anterior and posterior collecting tubules. Excretory formula 2[(2 + 2 + 2) + (2 + 2 + 2)].

Testes tandem, round to elongate oval, 153–235 μm (191) long x 129–188 μm (162) wide, and (in 3 specimens) 141–153 μm (149) deep. Anterior testis separated from acetabulum by 119–306 μm. Testes contiguous or up to 85 μm apart. Seminal vesicle coiled. Cirrus sac immediately anterior to acetabulum, about 158 x 53 μm. Genital pore about midway between suckers.

Ovary in anterior third to two-fifths of body, submedian, round or transversely oval, 88–118 μm (102) x 112–141 μm (129) and 106–123 μm (118) deep; separated from posterior testis by 34–136 μm. Receptaculum seminis up to 79 x 68 μm. Vitellaria composed of 8–10 large (up to 121 x 60 μm) follicles on each side of body. Vitelline fields 318–447 μm (376) long, from 34–136 μm posterior to ovary. Uterus occupying all of hindbody posterior to vitellaria, then passing forwards dorsal to and between ovary and posterior testis, posterior and anterior testes, anterior testis and acetabulum; travelling dorsal to cirrus sac and opening immediately anterior to cirrus at genital pore. Eggs 32–39 μm (35) by 21–23 μm (22); when new laid hatching in water; miracidium swimming actively.



The character which distinguishes *Lutztrema* from the closely related genera *Brachylecithum* and *Lyperosomum* is the alimentary system, in which there is a single caecum, or with one of the two caeca rudimentary; the main caecum is relatively long, median and in the form of a zigzag. Probably because the alimentary system was not described in the original descriptions, a number of species ascribed to *Lutztrema* have subsequently been referred to other genera (generally to *Brachylecithum*). Yamaguti (1971) listed 11 species from birds and one from a mammal; he did not mention the species *L. heterocaraxi* Bisseru, *L. singhi* Bano, *L.*

-OVER-

stunkardi Bano or *L. vitelloconfluentum* Ali, Deshmukh & Karyakarte. No further species have been described to date. Most of the above 16 species have relatively broad bodies, short behind the vitellaria, and *L. ailuroedi* differs from them in this and in other features. Its body width length ratio is closest to that of *L. microstomum* Denton & Byrd (from *Cyanocitta cristata* Linn.), *L. singhi* Bano (from *Corvus splendens* (Kreillot)) and *L. heterocoraxi* Bisseru (from *Heterocorax capensis capensis* Sharpe). From the ranges of width and length given for the first two species, we estimate the width/length ratio of *L. microstomum* to vary from 1:11–1:16, and of *L. singhi* from 1:10–1:13. The measurements given of one specimen of *L. heterocoraxi* (presumably the holotype) show a ratio of 1:16.

The most notable difference between *L. ailuroedi* and *L. microstomum* is in the position of the acetabulum (situated "about one-tenth of body length from anterior end" in *L. microstomum*, and between the anterior seventh and fifth in *L. ailuroedi*). Other differences are: the body behind the vitellaria (as shown in the figure) is relatively longer in *L. microstomum*; in *L. ailuroedi*, the testes are round or elongate oval and lie in tandem, while in *L. microstomum* they are rounded to transversely oval and situated slightly obliquely; in *L. microstomum* the ratio of the diameter of oral sucker to acetabulum is 1:1.75–1:2.80, but in *L. ailuroedi*, 1:1.5–1:1.7. The eggs of *L. microstomum* may be slightly shorter (29–35 μm long, 19–24 μm wide). Laurer's canal was not observed in *L. ailuroedi*, but with these exceptions, this species agrees very closely with the description of *L. microstomum*.

Apart from its relatively narrower body, *L. ailuroedi* differs from *L. singhi* in having scattered papillae on body surface (*L. singhi* is covered with minute spines); eggs (32–39 μm) are slightly longer (30–36 μm in *L. singhi*); vitellaria ending somewhat nearer hind end of body; testes in tandem (somewhat oblique in *L. singhi*). Bano gives the position of the acetabulum as "posterior region of anterior third of body", but from the figure of the type, it is in the anterior fifth (in *L. ailuroedi*, anterior seventh to fifth).

L. ailuroedi appears to be close to *L. heterocoraxi*, but differs chiefly in the sucker ratio (1:1.5–1:1.7 in former, 1:2 in latter) and in egg size (35 x 22 μm in former, 39 x 26 μm in latter). The absolute sizes of the suckers appear to be greater in *L. heterocoraxi*, the acetabulum is slightly further back (in anterior fifth of body in *L. heterocoraxi*, between anterior seventh and fifth in *L. ailuroedi*) and the maximum width of the body is at the acetabulum in *L. heterocoraxi*, at the vitellaria in *L. ailuroedi*.

Lutztrema bhattacharyai (Pande, 1939)

Синоним: *Lyperosomum bhattacharyai* Pande, 1939

(Рис. 126)

Хозяева: птицы — *Sturnopastor capensis, Temenchus pagodarum.*
Локализация: желчные протоки и желчный пузырь.
Место обнаружения: Индия.

Описание вида (по Панде, 1939 из Травассоса, 1944). Длина тела 3,8 мм при ширине в области брюшной присоски и семенников 0,3 мм, в области матки 0,34 мм. Тело тонкое, удлиненное, более или менее цилиндрическое, суженное к обоим концам; имеются многочисленные одноклеточные кожные железы. Размер брюшной присоски достигает 0,27 × × 0,25 мм, длина ее превышает ширину; она находится на расстоянии около 0,55 мм от переднего конца тела. Ротовая присоска субтерминальная, причем с дорзальной стороны позади присоски выступает отросток тела в форме губы; размер присоски 0,12 × 0,14 мм. Соотношение размеров присосок как 1 : 2. Фаринкс достигает 0,05—0,07 мм; ширина его превосходит длину. Пищевод короткий, около 0,08 мм длины. Кишечные стволы были скрыты петлями матки. Половое отверстие расположено на уровне бифуркации кишечника. Половая бурса яйцевидная, достигает 0,1 мм длины при ширине 0,06 мм; она расположена впереди брюшной присоски и содержит скрученный семенной пузырек, маленькую простатическую часть и сильно развитой семяизвергательный проток. Циррус в выпяченном состоянии достигает 0,09 × 0,04 мм. Семенники круглые, расположенные слегка наискось и разделенные друг от друга одной петлей матки. Размер переднего семенника достигает 0,23 × 0,25 мм, а заднего 0,25 × 0,27 мм. Передний семенник отделен от брюшной присоски одной петлей матки. Яичник лежит позади семенников; он меньше семенников, поперечно-удлиненный, достигает 0,16 × 0,20 мм; он отделен от заднего семенника одной петлей матки. Круглый семяприемник лежит медианно, частично в зоне яичника, достигает 0,08 мм в диаметре. Тельце Мелиса располагается возле семяприемника. Желточники симметричные, состоят из двух латеральных групп в одиннадцать фолликулов; они занимают пространство длиною 0,5 мм в средней части тела, начиная от зоны семяприемника. Матка состоит из многих петель с многочисленными яйцами, занимающих все пространство тела позади тельца Мелиса, тогда как ее восходящая ветвь проходит между гонадами. Зрелые яйца темнокоричневого цвета, достигают 0,021 × × 0,015 мм. Экскреторное отверстие терминальное. Длинный, трубчатый экскреторный пузырь доходит до середины зоны желточников, принимая в себя латерально два собирательных протока.

Панде считает, что вид *L. bhattacharyai* наиболее близок к *Brachylecithum colorosum*, от которого отличается более задним расположением полового отверстия, сдвигом желточников кпереди, а также меньшим числом желточных фолликулов.

Травассос (1944) идентифицирует этот вид с *Brachylecithum colorosum* (Patwardhan, 1935), которого относит тоже к роду *Lutztrema*.

Хотя Панде ничего не говорит о числе кишечных стволов у своего вида, мы тем не менее причисляем его к роду *Lutztrema*, поскольку, судя по рисунку, у этой формы имеется один кишечный ствол.

Литература: Pande, 1939, стр. 19; Travassos, 1944, стр. 195.

FISCHTHAL AND KUNTZ, 1965

Lutztrema callosciuri n. sp. (Figs. 2, 3)

HOST: *Callosciurus prevostii pluto* (Sciuridae).

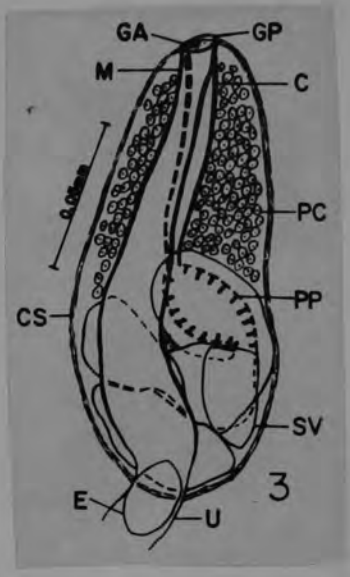
HABITAT: Liver.

LOCALITY: Ranau, North Borneo.

DATE: 22 September 1960.

TYPES: U.S.N.M. Helm. Coll. No. 6097 (one slide of holotype and one of paratype).

DIAGNOSIS: (based on four specimens, two measured): Body narrow, elongate, length 1,901 to 2,685, forebody width 106 to 13 width at vitellaria 305 to 350. Forebody 395 t 465, hind body 1,740 to 2,066; postovaria space 1,250 to 1,400, postvitellarian space 85 to 974. Preoral body 10 to 12 long, tapered t blunt point, humplike. Oral sucker (in three 73 to 133 by 65 to 116, subterminal ventra Acetabulum (in three) 81 to 155 by 118 t 179, nearly as wide as body, slightly elevate from body surface. Sucker length ratio (i three) 1 : 1.11 to 1.17. Pharynx 47 to 52 b 61 to 67, overlapping oral sucker dorsall



Cecum single, descending right of midline to posterior testis level before being masked by eggs, dorsal to acetabulum, testes and uterus. Excretory bladder not visible; pore terminal.

Testes two, diagonal, large relative to body width, smooth, elongate oval; anterior (left) testis 155 to 186 by 123 to 167, 29 to 58 postacetabular; posterior (right) testis 182 to 211 by 140 to 179, 177 to 260 postacetabular, overlapping level of anterior testis in one and 29 posterior in one, 5 to 70 preovarian. Cirrus sac 117 to 140 by 43 to 65, thick walled, muscular, commencing 29 to 61 preacetabular, containing seminal vesicle, pars prostatica, prostate cells and cirrus. Seminal vesicle tubular, much coiled, thin walled; pars prostatica short, thin walled, surrounded by prostate cells; cirrus long, straight, thick walled, muscular, surrounded by prostate cells, opening into genital atrium. Genital pore median to slightly submedian, 142 to 196 preacetabular, 87 to 103 postpharyngeal, 121 to 130 posterior to oral sucker.

Ovary 128 to 133 by 140 to 158, wider than long, smooth, sinistral, diagonal to posterior testis and in line with anterior testis, 355 to 555 postacetabular. Seminal receptacle (in one) 48 by 57, dorsal, overlapping posterodorsal edge of ovary. Laurer's canal muscular, sinuous, posterosinistral to ovary, sinistral to seminal receptacle. Vitellaria more or less in band across body, longitudinal extent 320 to 325, entire left field slightly more anteriorly placed than right; 515 to 735 postacetabular, 32 to 53 postovarian. Uterus voluminous, filling entire postovarian body; ascending right of ovary, crossing body between testes, right of anterior testis, crossing body between latter and acetabulum, over left portion of latter in slightly sinuous path to genital pore. Metraterm slightly thick walled, muscular, slightly shorter than cirrus sac. Eggs numerous, thick shelled, operculate, 18 measuring 29 to 36 by 18 to 23.

DISCUSSION: This is the first record of the genus from mammals; all other species are from birds. Skrjabin and Evranova (1953) placed seven species in the genus and Yamaguti (1958) 15; two additional species not listed in either volume have been described: *L. skrjabini* Tysavy, 1955; *L. heterocoraxi* Bisseru, 1960. Localities from which species of *Lutztrema* Travassos, 1941, have previously been reported are South, Central and North America, Europe, South Africa, India, and Japan. Our specimens appear closest to *L. colorosum* (Patwardhan, 1935) Travassos, 1944 (syn. *Lyperosomum bhattacharyai* Pande, 1939) from Indian birds but differ in having a mammalian host and suckers which are subequal in length rather than with a ratio of about 1 : 2.

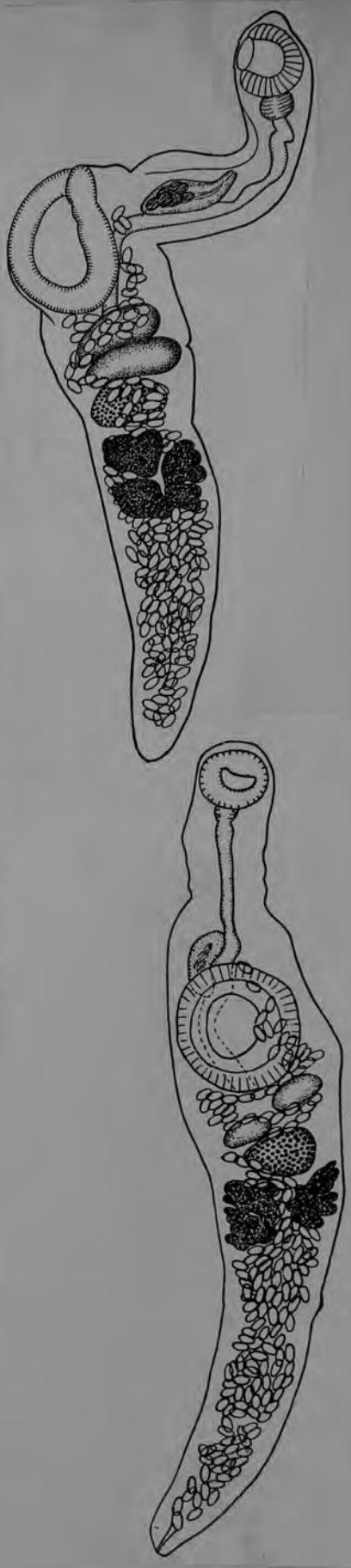
Lutztrema insigne Travassos, 1941
(Рис. 128)

Хозяин: птица — *Platycichla flavipes*
Локализация: желчный пузырь.
Место обнаружения: Бразилия.

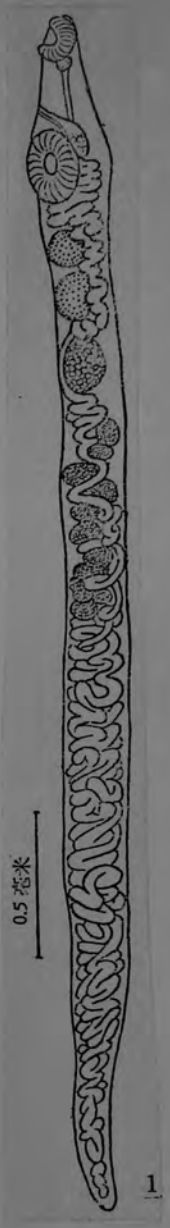
Описание вида (по Травассосу, 1941). Длина тела 1,3—1,6 мм при максимальной ширине 0,21—0,27 мм на уровне брюшной присоски. Тело почти колбовидное, достигающее наибольшей ширины в передней половине. Кутикула с маленькими, неправильно расположенными и мало заметными сосочками. Брюшная присоска очень крупная и сильно мышечная, около 0,19—0,25 мм в диаметре; расположена в передней части тела. Ротовая присоска мощная, субтерминальная, причем ее дорзальный край тела выступает вперед в форме губы; ее диаметр равен 0,12—0,14 мм. Соотношение между присосками 1 : 1,23—1,95. За ротовой присоской следует фаринкс около 0,045—0,053 мм в диаметре. Пищевод переходит в одинарный кишечный ствол, расположенный медианно и дорзально относительно гонад и оканчивающийся на расстоянии около 0,19—0,32 мм от заднего конца. Половое отверстие лежит на более или менее равных расстояниях от обеих присосок. Половая бурса достигает около 0,144—0,159 мм длины, при максимальной ширине 0,045—0,060 мм; она частично заходит в зону брюшной присоски, содержит циррус, простатическую часть и семенной пузырек. Семенники располагаются один позади другого или слегка наискось, причем они соприкасаются друг с другом или даже частично налегают друг на друга. Размер их достигает 0,076 ×0,053 мм и 0,136 ×0,0198 мм. Яичник частично расположен в зоне заднего семенника, субмедианно, почти соприкасаясь с краем заднего семенника; он поперечно-удлиненной формы и достигает около 0,098 ×0,091 мм и 0,159 ×0,091 мм. Лауреров канал и тельце Мелиса не были обнаружены. Семяприемник лежит позади яичника и достигает около 0,038—0,045 мм в диаметре. Желточники расположены позади яичника латерально и состоят из немногочисленных крупных фолликулов. Они достигают около 0,100—0,198 мм в длину и обычно более развиты с одной стороны. Они оканчиваются на расстоянии около 0,41—0,58 мм от заднего конца тела. Матка — с восходящей и нисходящей ветвями. Петли матки занимают весь участок тела позади желточников и обычно закрывают окончание слепого кишечного выроста. Они проходят между обеими группами желточников, а восходящая ветвь матки, образуя маленькие петли, проходит дорзально или латерально от гонад, не проникая между ними и не образуя петель впереди брюшной присоски. Яйца темножелтого цвета, с крышечками, 0,028—0,034 ×0,019—0,021 мм. Экскреторное отверстие терминальное.

Этот вид довольно похож на *L. transversum* (Travassos, 1917), от которого отличается бо́льшим различием в размерах присосок, а также тем, что желточники не занимают всю полость тела, и относительно меньшими размерами яиц. От *L. verrucosum* Travassos, 1941 отличается размером яиц и отсутствием крупных кутикулярных сосочков.

Литература: Travassos, 1941, стр. 342—343; Travassos, 1944, стр. 185.



Lutztrema leptosomum Chin, Tahsiung and Yiming, Ku, 1976



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3. *Lutztrema leptosomum* sp. nov. A fairly small and slender species, the mature specimens 1.0—4.1 mm × 0.24—0.32 mm. Minute papillae present on surface of body, but undetectable after fixation. Oral sucker 0.19—0.24 and acetabulum 0.12—0.29 mm in diameter. Pharynx about 0.08 mm. Oesophagus degenerated, very slender and difficult to detect. Crura not observed.

Testes round, 0.13—0.16 mm, in diameter, situated in tandem, a short distance behind acetabulum. Cirrus sac pyriform, dorsal to the anterior portion of acetabulum, with seminal vesicle included. Cirrus small and short. Genital pore anterior to acetabulum.

Ovary round, 0.16—0.19 mm, situated a little distance behind testes. Vitelline follicles comparatively large, vitelline zone longer then the gonadial zone, located a little distance behind ovary. Uterus similar to that of the above species, but with a few compact loops dorsal and anterior to the testes as well as dorsal to the acetabulum. Eggs about 42 × 23 μ.

From the gall bladder of the Chinese bulbul, *Pycnonotus sinensis* (Gmelin).

The above two new species of *Lutztrema* may be distinguished from most of the species of the genus by having their vitellaria collected into a single mass instead of being arranged laterally and also by their uterus not running through the testes. They are near to *L. transversum* and *L. verrucosum*. However, the compact, closely pressed and quadrate gonads of [*L. quadratogonum*] sp. nov. and the especially long and slender body, an ovary slightly larger than testes as well as a gonadial zone longer than vitelline zone of [*L. leptosomum*] sp. nov. make these two new species separable from the two species stated above as well as all the other species of the genus.

LUTZTREMA MICROSTOMUM, new species Denton + Byrd, 1951

FIGURE 34, *e*, *f*

Diagnosis.—Body of sexually mature specimens (fig. 34, *e*) semitransparent, elongated-slender, 3.00 to 4.95 mm. long by 0.19 to 0.46 mm. wide in region of vitellaria, tapering abruptly in preacetabular region and more gradually toward posterior end. Cuticle thin, aspinose, with small conical, retractile, sensory papillae visible on lateral margins of preacetabular region. Oral sucker subterminal, small, 0.07 to 0.13 mm. in diameter, preceded dorsally by a prominent liplike projection. Acetabulum relatively large, 0.14 to 0.23 mm. in diameter, muscular, cup-shaped with fairly deep lumen (fig. 34, *f*), situated about one-tenth of body length from anterior end. Ratio of diameter of oral sucker to acetabulum 1:1.75 to 1:2.80. Pharynx slightly wider than long, measuring 0.03 to 0.05 mm. long by 0.03 to 0.06 mm. wide. Esophagus very thin-walled, slender, approximately 0.14 mm. long. Cecum slender and thin-walled, passing either to right or left of anterior testis, between testes, and between posterior testis and ovary, then continuing posteriorly in more or less wide undulations to near body middle, where it terminates. Excretory pore terminal. Excretory vesicle thin-walled, narrow, tubular, extending anteriad to level of anterior limits of vitellaria, where it receives two common collecting tubules. Each common collecting tubule receives an anterior and posterior main collecting tubule at level of intertesticular zone. Genital pore median, located approximately midway

between suckers. Testes rounded to transversely oval, 0.11 to 0.26 mm. long by 0.12 to 0.31 mm. wide, situated slightly obliquely in anterior third of body with zone of posterior testes entirely behind that of anterior, a relative position retained even in greatly contracted specimens. Vasa efferentia arising from dorsomedial surfaces of testes, uniting just in front of anterior testis to form a long vas deferens. Cirrus sac elongated-pyriform, 0.12 to 0.16 mm. long by 0.06 to 0.07 mm. wide, containing a coiled seminal vesicle, ejaculatory duct surrounded by prostatic gland cells and a cirrus, which is usually observed to be partly everted in preserved specimens. Cirrus sac usually contiguous with anterior margin of acetabulum. Ovary transversely oval, 0.08 to 0.15 mm. long by 0.08 to 0.18 mm. wide, submedial in position close behind posterior testis. Seminal receptacle large, globular, posterior to caudal margin of ovary. Mehlis' gland located immediately posterior to seminal receptacle. Laurer's canal opening to outside dorsally to posterior third of ovary. Vitellaria composed of 8 to 15 large, oval follicles on each side of body, tending to fuse in median line anteriorly, located just posterior to seminal receptacle. Vitelline ducts arising from anterior vitelline follicles and uniting medianly to form common yolk reservoir. Uterus much convoluted, filling most of body posterior to ovary, usually following course of cecum in ascending, sometimes leaving cecum to ascend on same side of ovary and posterior testis. Uterus describing several, usually 3 to 6, lateral loops between anterior testis and acetabulum before ascending to genital pore. Metraterm weakly muscular, equal in length to cirrus sac. Mature ova dark brown, 29μ to 35μ long by 19μ to 24μ wide, fully embryonated when oviposited.

Host.—*Cyanocitta cristata* (Linnaeus).

Habitat.—Liver and gall bladder.

Localities.—TEXAS: Houston (type); GEORGIA: Augusta; and NORTH CAROLINA: Highlands.

Molluscan hosts.—*Bulimulus alternatus mariae* (Albers), *Deroceras reticulatum* (Müller), and *Deroceras laeve* (Müller).

Type specimen.—U. S. N. M. Helm. Coll. No. 36761. Additional specimen, No. 36769.

Remarks.—*Lutztrema microstomum* is recorded only from the blue jay *Cyanocitta cristata*. Seven (27 percent) of the 26 specimens of this host examined harbored from 1 to over 200 worms (average 42 per bird). *Lutztrema microstomum* can be separated from *L. monenteron*, the only other member of the genus thus far encountered from birds in the United States, by its smaller and much narrower body, its relatively larger and more anteriorly situated acetabulum, its relatively shorter cecum, its more tandem testes, the greater distance between the acetabulum and testes, and the pattern of the uterus in front of the anterior testis.

LUTZTREMA MONENTERON (PRICE AND McINTOSH, 1935)

SYN. *Lyperosomum monenteron*, ~~n. sp.~~ PRICE AND McINTOSH, 1935

Description.—Body lanceate, 1.9 to 5.2 mm long by 630 to 670μ wide at level of acetabulum, narrowing more or less abruptly in preacetabular region, and with short, lip-like projection dorsal to oral sucker; cuticula smooth. Oral sucker subterminal, 120 to 170μ long by 123 to 150μ wide; acetabulum 170 to 320μ long by 200 to 320μ wide, about 1/5 of body length from anterior end. Pharynx subglobular, 42 to 60μ long by 50 to 70μ wide, its anterior end in contact with oral sucker; esophagus slender; intestine single, extending between testes and between posterior testis and ovary, then continuing in more or less wide undulations (undulations wider, as a rule, than shown in illustration) and terminating blindly about 1/3 of body length from posterior end. Excretory aperture terminal; excretory vesicle tubular, extending anteriad to about level of anterior limits of vitellaria, then bifurcating and forming short lateral limbs; remainder of excretory system not observed. Genital aperture median, about midway between anterior margin of acetabulum and tip of body, its position varying somewhat, depending on amount of extension or contraction of preacetabular portion of body. Cirrus pouch elongate piriform to pestle-shaped, 160 to 320μ long by 65 to 100μ wide, containing a relatively long, folded seminal vesicle, a small pars prostatica, and cirrus. Testes transversely oval, 140 to 260μ long by 250 to 460μ wide, one diagonally in front of other in posterior part of anterior third of body. Ovary transversely oval, 90 to 125μ long by 100 to 220μ wide, posttesticular and to right of median line. Seminal receptacle globular or piriform, median, at level of posterior margin of ovary; Mehlis' gland moderately developed, postovarial; Laurer's canal long and slender, opening dorsal to ovary. Vitellaria in equatorial zone, consisting of relatively large follicles tending to meet anteriorly in median line. Uterus with greatly convoluted descending and ascending limbs, filling greater part of postovarial portion of body. Eggs 32μ long by 16μ wide.

FIG. 12. *Lyperosomum monenteron*, n. sp., dorsal view.

Host.—*Turdus migratorius* and *Sialia sialis.*

Location.—Gall bladder and bile ducts.

Distribution.—United States and Canada.

Specimens.—U. S. N. M. Helm. Coll. Nos. 40237 (type), 40238 (paratypes), 40239, 40240 and 34337.

This species differs from other species of the genus in having a single intestinal cecum. It is not improbable that some of the other species that have been assigned to the genus *Lyperosomum* by various workers may show this feature, but it appears not to have been mentioned. Some of the descriptions and illustrations of species indicate that the specimens studied were in such poor condition that it was possible to make out only the more obvious characters. Such descriptions and figures make it virtually impossible to determine the validity of many of the species.

About three years ago, Mr. Alex. D. Baker, MacDonald College, Quebec, forwarded to the U. S. Bureau of Animal Industry a number of trematodes for identification. Among these were several specimens from a robin, *Turdus migratorius*, which appeared to represent a new species belonging to the genus *Lyperosomum* Looss. Subsequently 3 additional lots of specimens have been secured, one from Mr. L. M. Dickerson collected from a robin at Charlottesville, Va., another collected by one of us (A. M.) from the same host at Washington, D. C., and a third from a bluebird found dead at Falls Church, Va.

Genus LUTZTREMA Travassos, 1941

LUTZTREMA MONENTERON (Price and McIntosh, 1935)

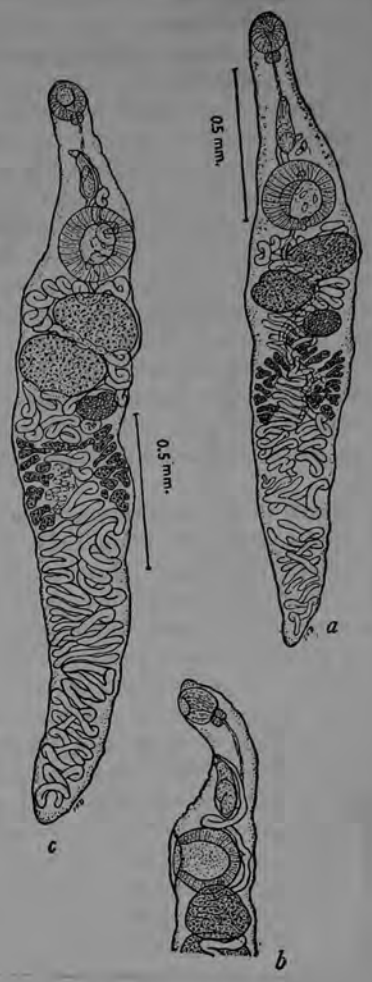
FIGURE 34, *a–d*

Lyperosomum monenteron PRICE and MCINTOSH, Proc. Helm. Soc. Washington, vol. 2, pp. 63–64, fig. 12, 1935.
Lutztrema monenteron TRAVASSOS, Mem. Inst. Oswaldo Cruz, vol. 36, pp. 336–338, 1941.

The material in the present collection agrees very closely with that described by Price and McIntosh (1935). The present study has brought out several features that might be of aid in recognizing the species as being separate and distinct from its closest relative, *L. obliquum* (Travassos, 1917). These features only will be considered. The body of the relaxed specimen (fig. 34, *a*) is widest in the region of the anterior testis; it tapers gradually from this point toward both ends. Although aspinose, the cuticle usually exhibits fine transverse ridges over most of the body while small, conical, retractile sensory papillae appear on the surface of the oral sucker and along the margins of the preacetabular region of the body; these papillae are readily observed on living worms. The acetabulum (fig. 34, *b*) is strongly muscular and cup-shaped with a deep lumen; it is usually set in the bottom of an acetabular depression. The ratio of the width of the oral sucker to acetabulum varies from 1:1.65 to 1:2. The cecum passes between the testes and between the posterior testis and ovary, and without exception terminates well in advance of the posterior end of the body, usually terminating anywhere from just posterior to the vitellaria to a point about one-third the distance from the vitellaria to the posterior end of the body. The common collecting tubules of the excretory system arise from the anterior end of the excretory vesicle and pass anterolaterally to a level midway between the testicular zones where they divide into anterior and posterior main collecting tubules. Each of the main collecting tubules gives rise to three short accessory tubules, each of which branches into two capillaries. Each capillary tubule terminates in a single flame cell, thus establishing a

2 [(2+2+2)+(2+2+2)] flame cell pattern. The vasa efferentia arise from the dorsomedial surfaces of the testes and unite midway between the anterior testis and acetabulum to form a long vas deferens, which parallels the course of the cecum to the cirrus sac. The transversely oval testes frequently show a distinct indentation of their lateral margins. The number of vitelline follicles varies from 8 to 14 on each side of the body. Anterior to the level of the ovary the uterus follows the course of the cecum in ascending to the genital pore. The mature ova, 30μ to 34μ by 17μ to 21μ, contain ciliated, styleted miracidia, each with two large, oval, refractile vesicles.

Lutztrema monenteron has been reported previously by Price and McIntosh (1935) from the gall bladder and bile ducts of the robin, *Turdus migratorius* Linnaeus, and the bluebird, *Sialia sialis sialis* (Linnaeus), from Washington, D. C., Virginia, and Quebec, Canada, and by Ishii (1942) from the liver of the ruffed grouse, *Bonasa umbellus* (Linnaeus), and the kingbird, *Tyrannus tyrannus* (Linnaeus), from Minnesota. Through the kindness of Dr. E. G. Wallace, University of Minnesota, we have been permitted to examine slides numbered G–33–19, G–36–6 (ruffed grouse) and G–36–7, G–36–8 (kingbird) of Ishii's material. Since the mounted specimens of this material prove to be entirely unsuitable for study it is impossible for us to verify Ishii's identification. The species from the ruffed grouse and kingbird, then, must remain as *species inquirenda* awaiting further study on more favorable material.



From Denton & Byrd 1951

The present paper reports specimens of *L. monenteron* from the liver of the robin, *Turdus migratorius*, from Mountain Lake, Va.; Highlands, N. C.; Augusta, Ga.; Nashville, Tenn.; Houston, Tex.; and Marion, Ohio. Fourteen (73.7 percent) of the 19 robins examined by us proved to have flukes of this species in the gall bladder and bile ducts. In addition to the material from the robin, specimens identified as *L. monenteron* were taken from the gall bladder of two (10 percent) of 20 mockingbirds, *Mimus polyglottos* (Linnaeus), from Augusta, Ga., and Houston, Tex., and from a single (2.4 percent) brown thrasher, *Toxostoma rufum* (Linnaeus), from Mountain Lake, Va. Although the specimens from the mockingbird (fig. 34, *c*) and brown thrasher (fig. 34, *d*) are slightly smaller, they agree very closely with the form from the robin in (1) shape of the body; (2) ratio of sucker sizes and position of the acetabulum; (3) course and length of the cecum; (4) shape and position of the genital organs; (5) position of the genital pore; and (6) pattern of the uterus in front of the anterior testis. In certain of the specimens from the mockingbird the ova measure as much as 39μ in length, while in other specimens from the same host they fall within the range given for the ova from the robin material. Further evidence that the worm from the mockingbird is identical with the form in the robin is obtained through life-history studies; the larval stages of the two forms are indistinguishable (unpublished data).

Specimens No. 36759 and 36760 from the robin, No. 37114 from the mockingbird, and No. 37113 from the brown thrasher have been deposited in the helminthological collection of the United States National Museum.

We agree with Travassos (1944) in considering *L. monenteron* to be very closely related to *L. obliquum* (Travassos, 1917). The two forms, however, can be distinguished readily by the length of the cecum. In all the present specimens the cecum terminates well in advance of the posterior end of the body, usually at the junction of the middle and posterior body thirds, while in *L. obliquum* it terminates just short of the posterior end. There is also a slight but consistent difference in the size of the eggs. Since the North American hosts of *L. monenteron*, with the exception of the kingbird (reported by Ishii), are all nonmigratory birds or species in which migration is confined to movements within the continent, and since certain definite anatomical differences are observed, we are of the opinion that *L. monenteron* and *L. obliquum* should be retained as separate species until more is known concerning the life history and geographic distribution of the two forms.

Lutztrema* (*Lutziella*) *microacetabulare ~~n. sp~~ ROHDE, 1966

DESCRIPTION (based on whole mounts of ten and sections of three specimens): Delicate, flattened dorsoventrally. Longer than broad, maximum width approximately at level of ovary. Gradually tapering posteriad. Surface of body smooth. Oral sucker with weak musculature, subterminal, pharynx small. Digestive tract behind pharynx much narrower than pharynx, gradually becoming wider, branching directly in front of ovary. Two lateral branches of digestive tract short and wide, terminating at level or in front of ovary. Digestive tract more or less filled with large crystals. Acetabulum with weak musculature, smaller than oral sucker, at anterior boundary of second fourth of body. Testes symmetrical at level of posterior margin of acetabulum, straight-margined, round or oval. Ovary submedian, posterior to testes, straight-margined, round or oval, as large as or larger than testes. Seminal receptacle much larger than ovary, behind ovary, lateral to it, and overlapping it, its wall invaginated. Vitellaria lateral, from level of testes to short distance behind middle of body, that on side of ovary always extending over shorter distance than that on opposite side. Transverse yolk duct behind seminal receptacle, small yolk reservoir and Laurer's canal present. Mehlis' gland near yolk reservoir. Uterus fills most of body from level of cirrus pouch to short distance in front of posterior end of body, overlapping vitellaria, seminal receptacle and acetabulum, and in some specimens parts of ovary and testes. Cirrus pouch more or less median, in first fourth of body, with coiled seminal vesicle, ejaculatory duct, and prostatic glands. Genital opening median, some distance behind pharynx. Excretory opening terminal, excretory bladder tubular. Mature eggs brown, small, oval, and operculated.

HOST: *Mystis mystacinus* (Kuhl).

LOCALIZATION: Gall bladder.

INTENSITY OF INFECTION: 13.

LOCALITY: Janda Baik, Pahang, Malaya.

HOLOTYPE: British Mus. Nat. Hist. Helm. Coll.

PARATYPES: U. S. Nat. Mus. Helm. Coll. No. 57498; Dept. Zool. Univ. Malaya; British Mus. Nat. Hist. Helm. Coll.; and Helm. Coll. Humbold–Universität Berlin.

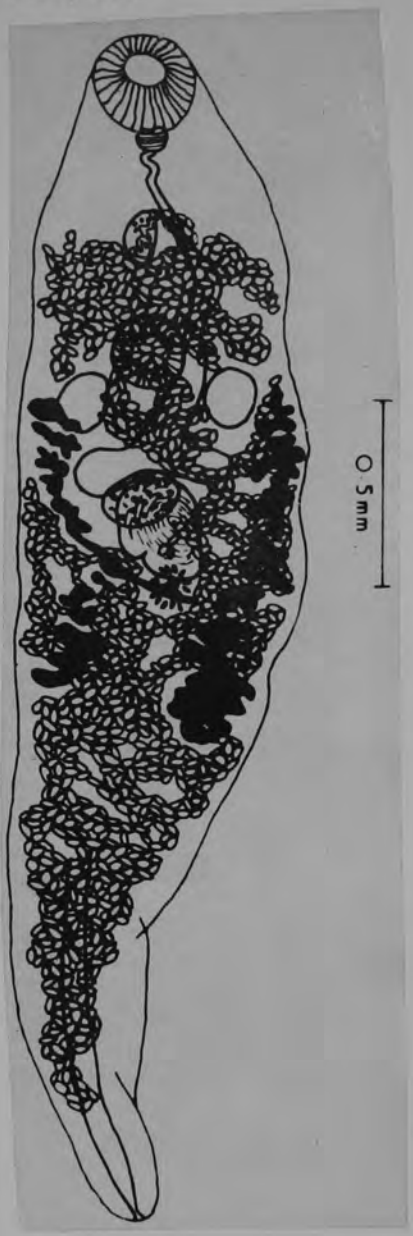


TABLE 3. *Lutztrema* (*Lutziella*) *microacetabulare*. Measurements of nine specimens (in millimeters; longitudinal diameter of organs first).

Specimen No.:	1	2	3	4	5	6	7	8	9
Length	2.8	2.9	3.1	3.1	3.2	3.2	3.7	3.7	4.0
Maximum width	0.83	0.86	0.74	0.87	0.83	0.83	0.87	0.93	0.96
Oral sucker	0.22×0.27	0.24×0.24	0.24×0.27	0.22×0.25	0.27×0.24	0.22×0.27	0.27×0.30	0.27×0.30	0.27×0.33
Pharynx	–	0.06×0.06	0.06×0.05	0.05×0.05	0.05×0.06	–			0.04×0.05
Acetabulum (diameter)	0.17	–	0.19	0.24	0.21	0.19	0.23	0.22	0.23
Testis (ovarial)	0.16×0.18	0.22×0.15	0.15×0.15	0.18×0.15	0.18×0.13	0.15×0.10	0.16×0.16	0.17×0.17	0.25×0.21
Testis	0.16×0.15	0.22×0.18	0.18×0.09	0.17×0.15	0.16×0.15	0.18×0.13	0.13×0.15	0.21×0.17	0.22×0.17
Ovary	0.19×0.18	0.19×0.24	0.17×0.17	0.16×0.22	0.18×0.19	0.18×0.16	0.14×0.21	0.18×0.19	0.21×0.21
Vitellarium (ovarial)	0.85	0.64	0.64	0.80	0.81	0.69	0.81	0.91	0.84
Vitellarium	0.91	0.76	0.90	0.96	1.01	1.15	1.03	1.11	1.29
Eggs	0.033–0.045 × 0.019–0.024 (average 0.037 × 0.021)								

–OVER–

Discussion

As indicated by the structure of its digestive tract, the new form is, among all Dicrocoeliidae, most closely related to the species of *Lutztrema* Travassos, 1941 which are the only dicrocoelids with a single cecum or rudimentary double ceca. The Malayan material differs from the described species of this genus mainly in the following characteristics: its acetabulum is smaller than the oral sucker, while in *Lutztrema* it is always larger than the oral sucker; the testes are symmetrical, while in *Lutztrema* they are always oblique or tandem; the vitellaria extend into the space in front of the ovary, while in *Lutztrema* they are postovarian; and it is a parasite of Chiroptera, while most other described members of the genus *Lutztrema* are parasitic in birds, only one species occurring in rodents.

The symmetry of the testes cannot be used as a generic characteristic. Apparently, it depends on the relative size of the testes as compared with the width of the body at the testicular level.* Thus, in the related genus *Lyperosomum* Looss, 1899, the testes are tandem or oblique if the body is relatively narrow (for instance in *L. longicauda* (Rudolphi, 1809)) and symmetrical, if the body is relatively broad (for instance in *L. alectoris* (Nöller et Enigk, 1933)). Similarly, the relative sizes of the suckers do not justify separation at the generic level, because they vary considerably in various representatives belonging to one genus of the Dicrocoeliinae. Thus in *Eurytrema alveyi* Martin et Gee, 1949, the acetabulum is much larger than the oral sucker while in *E. pancreaticum* (Janson, 1889), it is much smaller.

The remaining difference, i.e., extension of the vitellaria into the preovarial space, distinguishes the Malayan form so clearly from all other species of the genus *Lutztrema* that the establishment of a new subgenus for it appears to be justified.

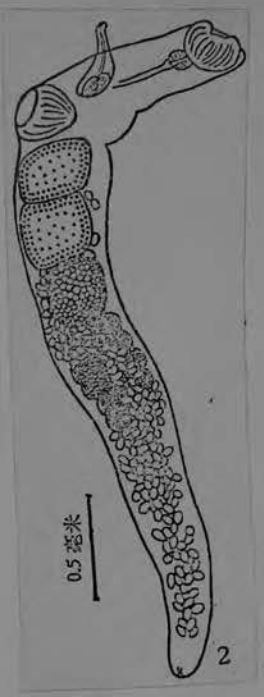
* I wish to thank Dr. Georges Dubois, Neuchâtel, for pointing this out to me and for his other valuable advice regarding *Lutztrema microacetabulare*.

Dicroceliidae

Lutztrema quadratogonum Chin Tahsiung and Ku Yiming, 1976

2. *Lutztrema quadratogonum* sp. nov. was found in the gall bladder of 3 out of 6 yellow-vented bulbuls, *Pycnonotus x. xanthorrhous* Anderson. Body elongate, 1.84—2.08 mm × 0.17—0.31 mm. Small papillae could be observed on surface of body in living specimens. Oral sucker 0.12—0.17 mm and acetabulum 0.12—0.22 mm in diameter. Pharynx 0.04—0.05 mm. Oesophagus degenerated, very narrow with no lumen detected, reaching near to cirrus sac; crura not observed. Acetabulum, testes and ovary being packed so closely to each other that the gonads become more or less quadrate in form. Testes 0.15—0.21 × 0.11—0.18 mm. Cirrus sac pyriform or short claviform, located in front of acetabulum, 0.10—0.17 mm in length. Cirrus digitiform, 0.07—0.10 mm. Genital pore opening about midway between suckers.

Ovary 0.12—0.14 × 0.09—0.14 mm. The gonadial zone, from the anterior margin of anterior testis to the posterior margin of ovary, being 0.37—0.51 mm in length. Vitelline follicles comparatively large, collected closely to form a rectangular vitelline zone immediately behind ovary, 0.25—0.31 mm in length. Uterine loops very compact, filling up entire hind portion of body. It stretches ventrad to ovary and turns dorsad anterior to it, reaching the genital pore along the dorsal margin of testes. No uterine loops present in front of ovary. Eggs 41 × 23 μ.

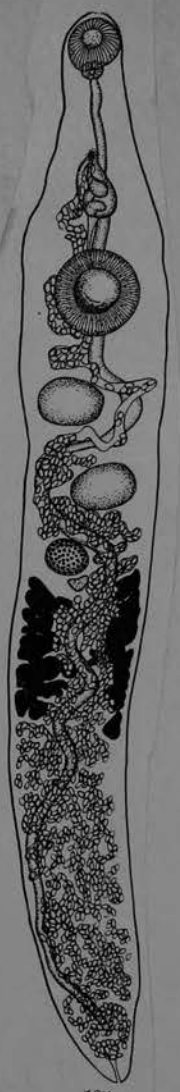


Lutztrema sturni Skrjabin & Evranova,1952

Syn. Lutztrema sp. Boyd,1951

Host: Sturnus vulgaris starling

Locality: North America

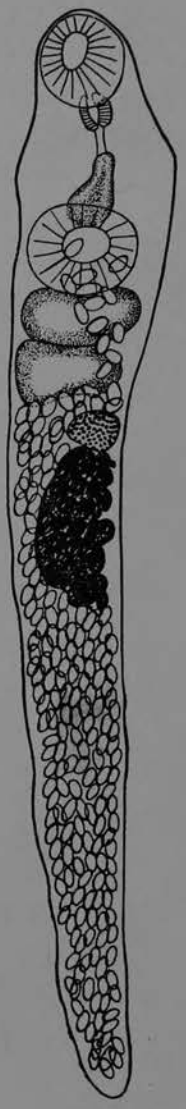


127

Lutztrema transversum (Travassos,1917) Trav.,1941

Syn: Lyperosomum transversum Trav.,1917
Brachylecithum transversum (Trav.,1917) Strom,1940

Hosts: Tyrannus melancholicus
Megarhynchus pitangus



130

Lutztrema verrucosum Travassos, 1941

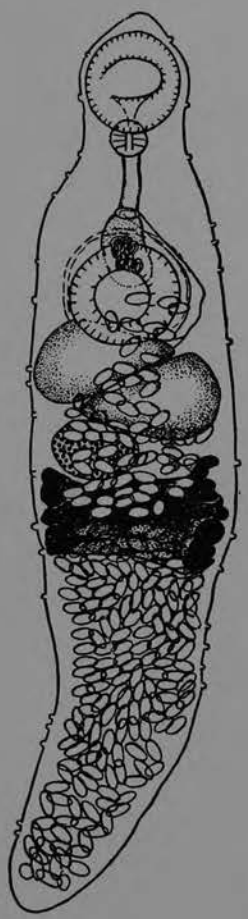
(Рис. 131)

Хозяин: птица — *Progne chalibea domestica.*

Локализация: желчный пузырь.

Место обнаружения: Бразилия.

Описание вида (по Травассосу, 1941). Длина тела 1—1,9 мм, при максимальной ширине 0,22—0,23 мм на уровне брюшной присоски. Тело почти колбовидное, наиболее широкое в передней трети. Кутикула с очень явственными, выпуклыми сосочками, диаметр которых достигает около 0,011 мм при высоте 0,011 мм. Они неправильно распределены по всей длине тела, сохраняя, однако, расположение в виде продольных рядов. Брюшная присоска сильно мышечная, выпуклая, около 0,13—0,19 мм в диаметре, расположена у переднего конца тела. Ротовая присоска мышечная, субтерминальная, причем край тела выступает впереди нее в форме губы; диаметр присоски 0,12—0,15 мм. Соотношение между присосками как 1 : 1—1,2. За ротовой присоской следует круглый фаринкс, около 0,045 мм в диаметре. Продолжением пищевода является одинарный кишечный ствол, расположенный медианно и закрытый гонадами и маткой, так что позади семенников его уже нельзя проследить. Половое отверстие лежит медианно



131

LUTZ TREMA

LOOSE LEAF
ORGANIZER

SCHEDULE

PERIOD OR TIME								
COURSE **MON.** INSTRUCTOR								
COURSE **TUE.** INSTRUCTOR								
COURSE **WED.** INSTRUCTOR								
COURSE **THU.** INSTRUCTOR								
COURSE **FRI.** INSTRUCTOR								
COURSE **SAT.** INSTRUCTOR								

NAME _____

ADDRESS _____

SCHOOL _____ TELEPHONE _____